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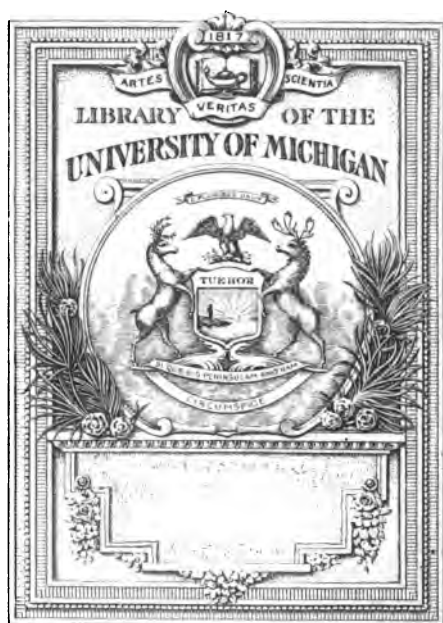
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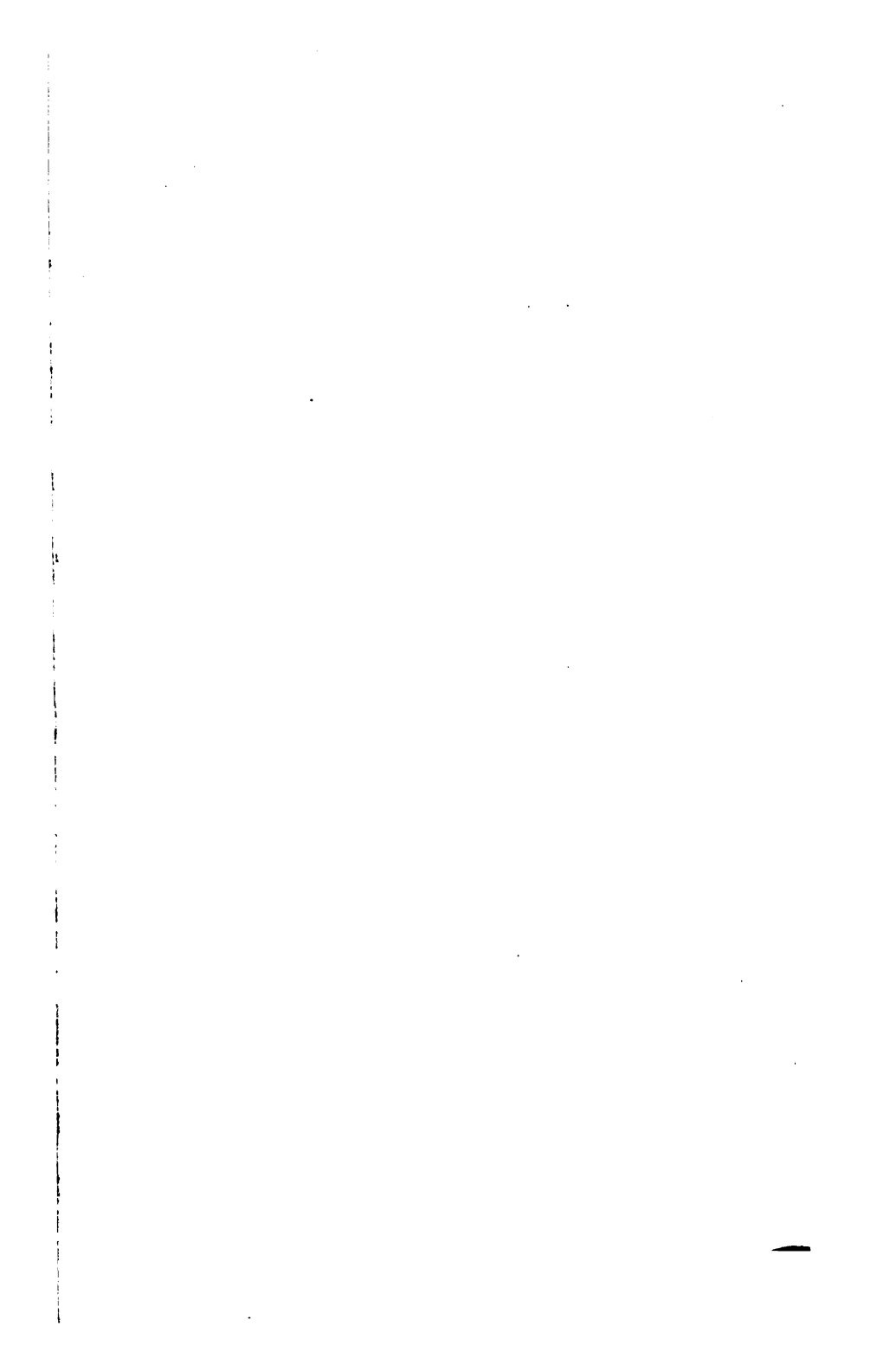
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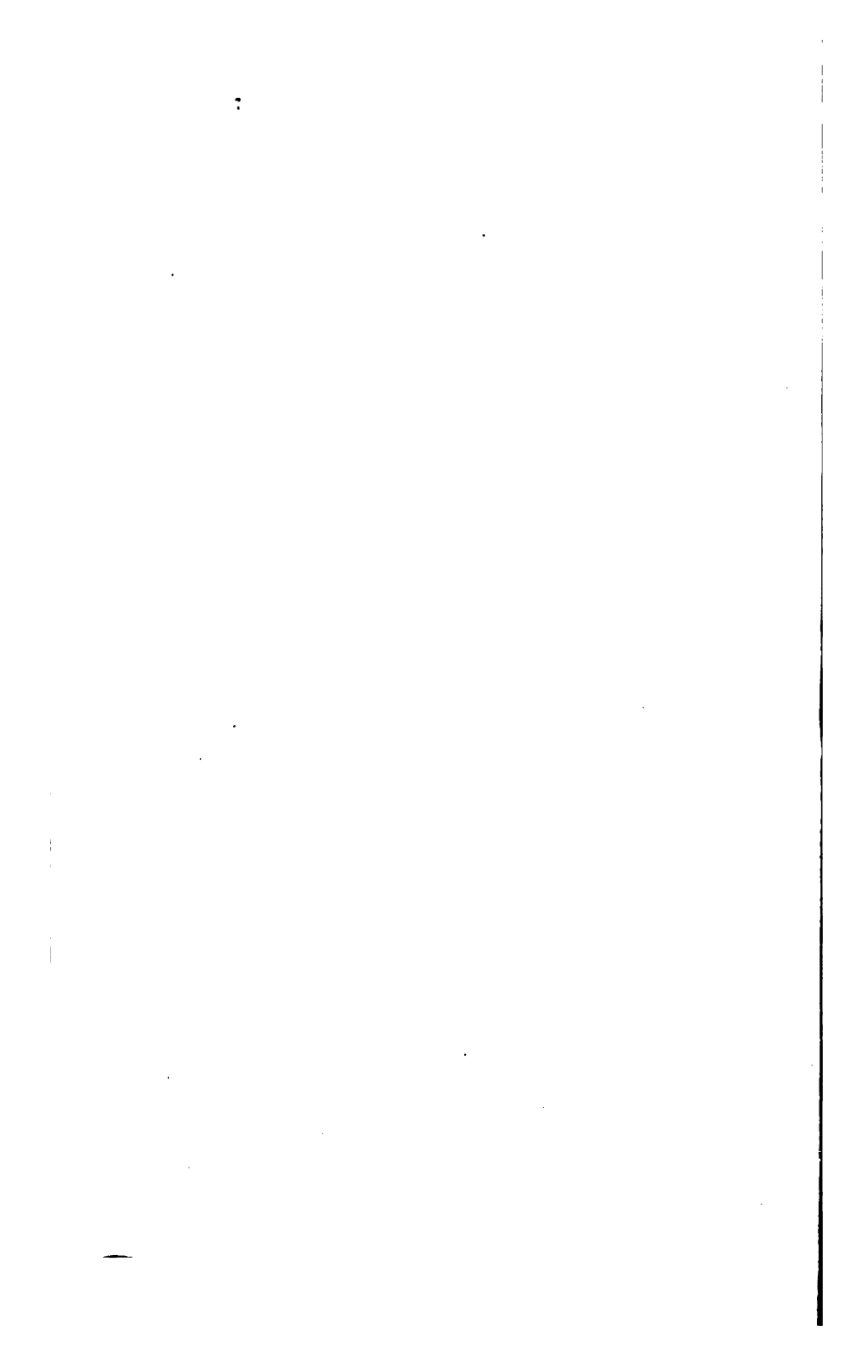
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IRRIGATION

IN THE

WEST INDIES,

BEING A SIMPLE PLAN BY WHICH THEY MAY BE

PERPETUATED

AS VALUABLE AND PRODUCTIVE

SUGAR COLONIES.

BY

EDWARD M^CGEACHY,

CROWN SURVEYOR, JAMAICA.

~~~~~  
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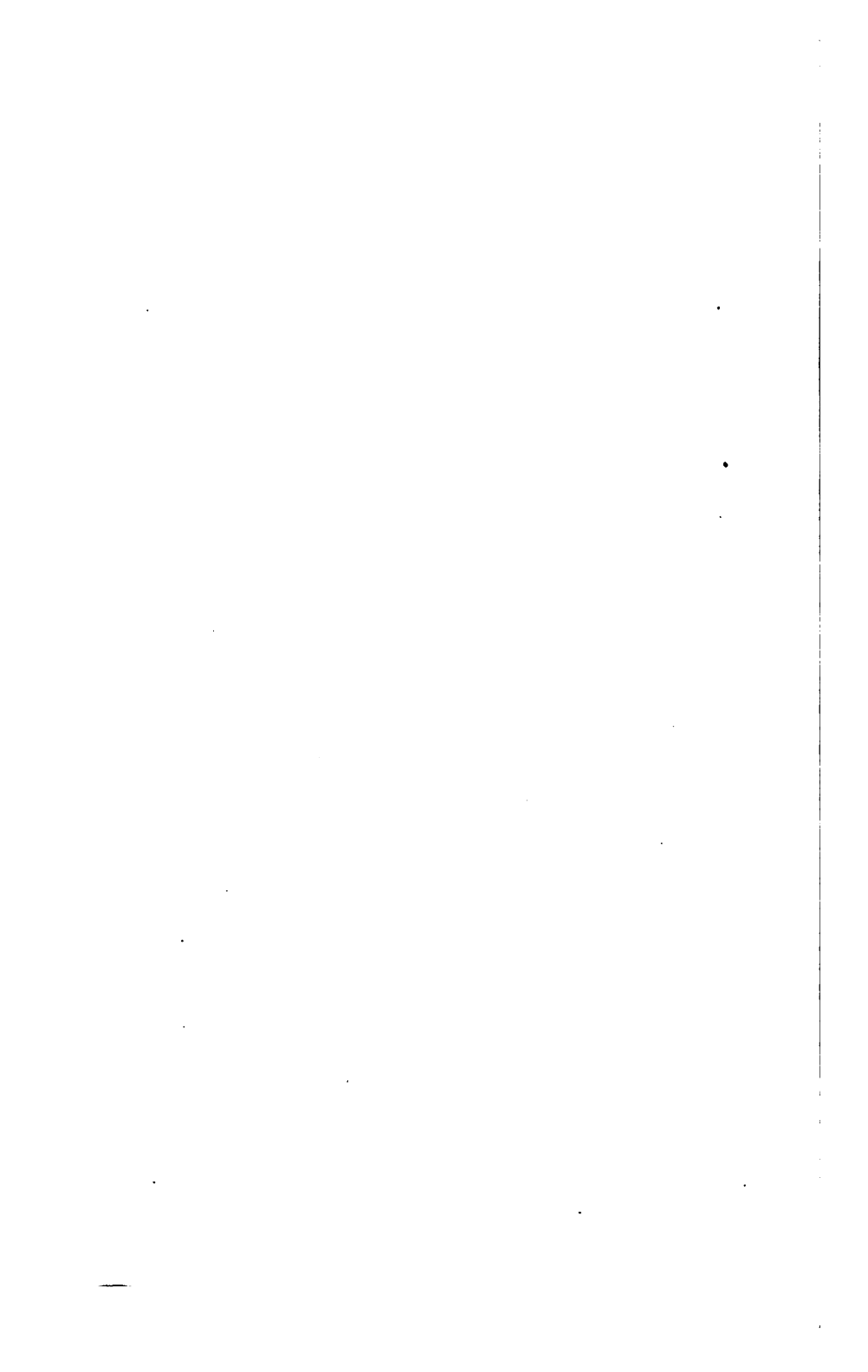
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## PRELIMINARY OBSERVATIONS.

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THE greater portion of the subjects contained in this Pamphlet have long occupied my attention, and the materials from which it is prepared have been for some time by me; but to present it to the public was never contemplated until the events of the last year or two, which have produced so many changes amongst us, seemed to call for some such production as the present; and my connexion with the West Indies, like that of many other persons, who must stand or fall by them, has induced me to offer it in its present form, with many imperfections from which one unused to public writing could hardly hope to escape. I could have desired more time, which my engagements have denied me, in correcting it for the public eye; but delay, I foresaw, would risk its ever appearing at all, and I, therefore, have trusted to the indulgence of the reader who will, I am assured, look to the matter, and readily pass over some defects, and acquit me at same time, of any other interest in the subject, than that which is our common stock—the good of all.

The want of a practical work comprehensively viewing some of the leading principles which must guide the future profitable production of the grand staples of *West India Agriculture*, as well as improvement generally, has tempted me to offer, through this Pamphlet, a plan which I have long been favorable to, and which embraces, I conceive, points of the first importance.

Without entering into the causes of the present position of West India affairs, it is admitted on all hands that they

are unprofitable, and that it requires all our skill and energies to improve them.

The want of *labour*, and of *capital*, the former especially, throughout the West Indies, but Jamaica in particular, is generally stated, and with truth.

The system of agriculture although much improved is still defective and unprofitable.—That it may with sufficient amount of labour and capital, and other means which I would employ, be wonderfully enhanced—and the means I allude to are abundantly within our reach, and of the most simple nature—they are *heat, moisture, and manures*.

I propose to use these simple, yet powerful agents, so that they shall *force our staples* to the utmost extent of production, of which any tropical country is capable. Powerful, however, as they are, it is imperatively necessary at the same time that all useful mechanical appliances shall accompany them, seeing that every useful machine is as so much labour; and I humbly conceive the best interests of the Island will at the same time be consulted, by *large premiums* being offered by the *legislature*, for given amounts of human labour saved, by their invention or introduction.

I further propose (what has already been so wisely recommended by Lord Elgin, in Jamaica) the universal separation of the duties of the grower, the manufacturer, and carrier:—That central manufactories for Sugar, or other staples, shall be established in all parts, where they can be advantageously used, and on scales sufficient for present, as well, possibly, as for future wants:—That *Rail Roads* and *Tram Roads* be constructed with reference to the value of the districts they traverse, and be designed on a clear and comprehensive plan, anticipating, as far as may be possible, future, as well as present advantages.

With these artificial aids, and labour, I am of opinion

that heat, moisture, and fertilizing matter (so abundantly to be obtained in most of our Islands,) are capable of forcing our agriculture to the highest pitch of perfection.

*Irrigation* especially has all the attention I can bestow on it, in order to give to the public the benefits which it and my other plans, I trust, may be found to possess.—This important subject, *Irrigation*, has during the whole period of my residence in Jamaica, occupied a considerable portion of my thoughts; and on a scale though small, yet at some personal expense, and for my own gratification, I have proved its astonishing powers. The sanatory condition of cities, towns, and villages in all tropical countries, require that they should be frequently cleansed of the constantly accumulating filth and rubbish collected in them; in short, that a plan, on the principle of the great *Metropolitan Sewerage*, should be adopted:—that the cleansings of the city be conveyed away and made to enrich districts, which I will show, can be abundantly irrigated; and to benefit others also where irrigation is not required:—that those enriched districts, by their Rail Roads, shall send back to the cities, thus improved, their greatly increased productions:—and that the shipping interest shall be benefitted, whilst the Planters, from the *certain* effects of *Irrigation*, shall cultivate their estates at a much diminished cost.—That water, used in an extensive, skilful, and beautiful system of irrigation, is capable of converting a waste into a Paradise; and dusty, wretched cities into the delightful abodes of man, needs not my humble pen to prove; nor is it necessary to show how easily and cheaply may be established in and around the towns, public *Gardens*, public and private *Baths*, *public washing establishments*—and even *public Cemeteries*, which no tropical city should be without, and which, with water, can be established, beautified, and kept up at a very trifling cost. That all these can be effected as well

as the agricultural part of my plans, to which they are subsidiary, and prove a highly valuable investment, the details which I shall give in this Pamphlet, will, I trust, abundantly prove.—That they will finally be adopted in the West Indies generally, but especially in Jamaica; where I hope they will be at once carried into effect, and their important benefits serve as a perfect model generally, for the West India Colonies, whose physical capabilities for the production of Sugar are equal to the supply of any quantity, the mother country may require.

That to carry out these plans, one extensive *Company* or several smaller *Companies* shall be organized—that a most profitable return will result from the capital employed, and that with a sufficient command of *capital*, and *labour combined*, with the other means proposed, the West India Colonies will yet recover, and, in the end, successfully *compete with the World*.

EDWD. M<sup>c</sup>GEACHY.

*Kingston, Jamaica, 1846.*



11

TO  
THE PLANTERS,  
MERCHANTS, SHIP-OWNERS, CAPITALISTS,  
AND ALL  
WHO TAKE AN INTEREST IN THE WEST INDIA COLONIES.

**This Pamphlet**  
IS RESPECTFULLY ADDRESSED.

~~~~~  
CHAPTER I.

THAT any man who lives in the West Indies, and whose prospects are identified with them, should take a deep interest in their fate, is not to be wondered at ; but that so few who are thus circumstanced, should have given to the world the many excellent suggestions they could have offered, certainly does excite much surprise, both here and in other countries. Is it that the once proud and independent West Indian has become disheartened, listless or spirit-broken ? Or that his poverty he views as crime, and seeks seclusion from the world rather than boldly meet its endless changes and trials, to which all are alike subject ? I trust not ; but that he will yet with energy arouse himself, and seek for fair protection, and no more ; and demand the attention of Capitalists, and not implore it. My object and humble attempt is to show fairly what *capital* with labour can do for *itself*, as well as for *us*, and I avoid all favour. Independent as this tone may appear I submit, nevertheless, with the greatest deference,

to the more correct conclusions of public opinion, the plans I am about to offer ; premising that they result from much thought on the subject, and my unaltered opinion of their utility.

Without, then, a waste of the reader's time or my own, in allusion to the past splendour, and present comparative wreck of this magnificent Island, Jamaica, and its sister Colonies, it may be more useful to offer for general consideration, such remarks and observations, as may yet help us to recover from our impoverished condition, to compete, possibly, with slave Colonies.

The difficulties which have overwhelmed the Planters of Jamaica, as well as those of most of the neighbouring Islands, arise without doubt, from *want of labour*, and in many instances want of capital. The first from general *emancipation*, and the second from the destruction of confidence consequent on it.

That both will return is my belief, grounded on the faith and reliance which every one must feel, who glories in the thought that were it but the *atom* of ground he stands on, it is, nevertheless, an integral, cared for, and *protected portion* of the *Great British Empire*.

With the restoration of these essentials, Jamaica and the other West India Islands, will assuredly become productive and profitable. Of the Island of Jamaica, in which I have long resided, I write with greater confidence, than of the rest ; but the causes which operate for or against the success of one, equally do so with the others—our lands, our climate, our seasons, and our people being all alike.

It may here be proper to take a general view of the *subjects embraced in this Pamphlet*, and to which, as near as I can, I will confine myself. They are :—The present condition of the West India Colonies ; their physical forma-

tion ; and capabilities for the production of the staples of tropical agriculture—The present, the former, and the gradual decline of, production ; with the real or probable causes of decline—Their prospect of future increase of population, and the economising of labour, and cheapening of production by immigration—The profitable investment of capital—The economy, and proper use of all fertilizing matter ; and the universal use of irrigation, wherever it is necessary, and can be applied ; with a detailed account of the extensive use I propose to make of it in Jamaica ; together with any other general observations connected with this important subject.

CHAPTER II.

THE extent and importance of the West India Colonies ought to be so well known as to render a description of them here, unnecessary ; but I will, however, in as concise and tabular a form as possible, glance at their relative importance, magnitude, &c. [see tables, page, 25]

By these tables the comparative extent, and the present condition of the Colonies, may be contrasted with their former position ; and in another part of this pamphlet will be found diagrams, shewing at one view, the general decline of Sugar and other productions of Jamaica, for a period of nearly forty years passed.

GUIANA, it will be perceived, is, by much, the largest Colony : and it is a common observation, that DEMARARA is capable of being made the Garden of the World ; yet, we are also told, that, notwithstanding there has not been any deficiency of capital, still, from want of labour, its cultivation is unprofitable, and that *it* likewise suffers from *drought*. I apprehend, however, that with a judicious system of embanking and draining, now I believe much improved, together, possibly, with irrigation, and abundant labour, that fine Colony will become a productive and an inexhaustable mine of wealth. It is also well wooded has numerous fine rivers ; and mountain climates favourable to the production of excellent Coffee, (that of Berbice, is very fine.) Sir Robert Schomburgk's work on Guiana, which I regret not having seen, is referred to as being highly valuable.

The Island of BARBADOS from its dense population, mainly, has the advantage over all the rest ; and, in a tabular view given in this pamphlet, its productive power

as compared with that of other islands, is strikingly contrasted. Its soil, although good, is not equal to that of many others; nor does it possess the invaluable advantage of irrigation so easily at its command: but, nevertheless, it is a prosperous, well cultivated and valuable Colony.

I might also advert to that extensive and important Island *Trinidad*; but to enter into a detail of each Island, even with the best means of information at command, is foreign to my present purpose;—it is sufficient to state that with very few exceptions, all the West India Colonies have more or less the means of Irrigation, if properly arranged; and more or less also of good available land; and that fertilizing matter may be abundantly found in each of them:—that these and labour are indispensable to all of them, for successful cultivation, and competition with other countries. Their value in a geographical, political and commercial point of view, it is unnecessary to say, has been long since admitted. The physical features of these countries are highly interesting and beautiful, and each possesses a diversity of climate rarely to be met with. Their mountains susceptible of cultivation vary from one to nearly eight thousand feet of elevation, and their endless variety of climate may hence be inferred.—I confess it has often amused me to witness the surprise of strangers who from the “insupportable” heat of Kingston (Jamaica) have in two hours after (in the mountains) been glad to make *warm* friends of *blazing fires*, and good English *blankets*.

In these mountains families reside with great comfort, and the most uninterrupted enjoyment of health. It is to be wondered at, then, that proprietors do not more generally reside here; and this brings me to the consideration of “*absenteeism*,” an existing evil greatly to be deplored. It is surprising how regardless Europeans heretofore have been of substantial and permanent improve-

- ments—all is haste to go away, and go they do, the moment enough money is made just to “*exist*” with elsewhere! Is not this a serious evil, and bar to the improvement of the country? It certainly is; and if it can be remedied, it is as important a consideration, as any other which I have alluded to; for until people will consent, or can any how be induced, to make this their home, so long will the objections I have stated continue. What is the cause of this evil? Is it the climate? Is it the want of society? Want of means here of education for their young families? Or is it a general dislike to the country, arising from the *unsettled state of things*; and absence of many of those personal comforts, so indispensable, and so abundant in other countries? Doubtless some of these contribute their share to produce the evils complained of, but if people will take the necessary trouble they can be all remedied. Where are there finer climates in the world than in Jamaica, exceeding in variety, almost anything a stranger could imagine, and even in the low hot plains, the towns may be greatly improved in health, and infinitely so in real comfort. The City of Kingston covering nearly two square miles of ground, by nature is favourably situated and healthy, and worthy all the care that can be so easily bestowed for its improvement. The abundant flow of water which I propose to bring to it, and to its adjacent plains and suburbs, would render this one of the most delightful towns in the West. The beautiful picturesque mountains immediately in view of, and north of the city, are proverbial for their healthful and agreeable climate. *New Castle garrison* is among them at an elevation of ~~three~~⁴⁴ thousand feet above the sea, and Her Majesty's troops, stationed there, (the 60th (Rifles) and 48th Regts.) have not had a case of fever in three years. The Governor Lord Elgin, also resides a great deal in these mountains, and many English families also; society, generally

speaking, is choice, although limited : it would be less so with a more settled state of things, and additional improvement in our towns, dwellings, and general domestic economy. The means for local education appear increasing, and some of the best families in the Island have set the laudable and valuable example of educating their children under their own roof, in a manner quite as substantial and elegant as England could afford, whilst they, at same time, spare themselves expense, inconvenience and all those painful feelings of separation which too many have experienced : all these things are intimately connected with the present subject, for nothing will be substantially done, in improvements, or any thing else, until people have the clear and certain prospect before them of a comfortable and *settled home here*. Things once brought to this state, which they easily may, Jamaica and the West Indies generally would be prosperous and *delightful* countries ; and the wonderful facilities now afforded for passing the Atlantic, in those admirable R. M. Steam Ships, leave us no longer in that state of isolation once felt, but bring us within a convenient and agreeable distance of Europe and all other countries which our means or wishes may incline us to visit. In these mountainous climates the finest Coffee in the world is grown, and nothing can surpass the richness of the alluvial soils on the coasts, where, in the periodical droughts, irrigation will be used, and immensely enhance their value. It is useless to state the well known fact that it does so in other countries, and will assuredly do so in this. Of the important and rapid future increase of population, to all our West India Colonies, there cannot remain a doubt, so long as this great *want* shall be *understood, acknowledged, and supplied*. The requirement of the mother country, as well as its almost ruined colonies alike imperatively demand it : with even a large supply of mechanical aids and

inventions, there is much of our tropical agriculture for which manual labour is indispensably necessary, and so long as it cannot for money be obtained when required, so long must the statement hold good *that there is a deficiency of labour*. But on this subject I will offer more timely remarks, when I come to the subject of Irrigation.

CHAPTER III.

AFRICA I look upon as the grand source of supply of *emigrants*: it is near at hand, and did not even the principles and dictates of common sense suggest emigration from its shores, those of humanity must, for the fact is now too notoriously known, to be any longer argued or doubted, that the African emigrant who arrives amongst us, discovers at once that he has left a country barbarous and wretched, for one, to him, of peace, happiness and prosperity. To listen to statements of cruelty and oppression being practiced on emigrants who arrive in these colonies is amusing; but, nevertheless, West Indians have wronged themselves seriously, by their indifference to contradict such statements. I would simply ask, where is the Colonist, who would dare (were he inclined) to transgress the powerfully protecting laws, provided for the emigrant; and were he to do so, where is the Governor of a Colony who would not instantly visit this luckless wight, with the laws' utmost severity? Can any thing be more notorious, than the fact of hordes of emigrants occasionally flocking to the halls of Government House, on the most trifling occasions? And such I believe to have been tolerated only, because of the jealous eye, with which all acts relative to emigrants have been viewed. I will not enter into detail about emigrants, which the enlightened public sufficiently understand,—and need not do more than state that the laws for their protection are humane, efficient, and rigidly respected. If any Colonist obtains a steady labourer, or a good servant how fortunate is he; and how often does he ask himself the question, What amount of kind acts can I prudently bestow on this man to retain him? but he has

scarcely decided ere he discovers that the subject of his self-congratulations has vanished ! Annoying and perplexing as such circumstances are, I do not notice them in a tone of complaint, for it is human nature for every man to consult his own interests, views or wishes before those of another ; but, nevertheless, it is an evil, and an evil of that nature which all fly from who can. What an amount of trouble do families experience, from the idle, reckless insolent conduct of servants, and none more so than English families who have been accustomed to better ! That there will be an end to this, I do not doubt, but as the evil arises from scarcity of population, it is connected with my subject, and proper to be noticed.

Scantiness of population is the main and trying difficulty : of the people themselves, I verily believe they are about as good as the lower orders in most parts of the world, and I bear testimony to the respectable, trustworthy conduct of many black persons whom I recently remember as slaves, and who now hold trusts from their late masters of considerable responsibility. Much unmerited obloquy has been cast on the Planters, Planting Attorneys, and others of our Islands ; and as this portion of our social class have much to do with emigrants, it is necessary, I conceive, to say a few words respecting them. No one is better acquainted with them than I am ; and I fearlessly state that a kinder hearted, more simple minded, and honourable class of men do not exist. Simplicity of manners and an honest unsuspecting disposition are the natural characteristics of Islanders, added to which, the majority of our Planters and Attorneys are men of good family and education, who, arriving here early in life, have been wholly cut off from the contaminating influence of "*the world*," which, for the most part, is too prone to view all men bad, who cannot or do not, prove or give an appearance to the contrary. But I neither blame the one

nor, conceive it necessary to go much out of my way to defend the other, seeing that it has long been the *custom* to *decry* the Planter ; and force of habit oftentimes obscures reason. Let there be mutual forbearance, and much good will eventually follow. But as the position of the Planter, with that of the emigrant or labourer must now be understood to be a matter of business, and no longer one of feeling, or good, or bad disposition, it is unnecessary to add further to the remarks I have made, but proceed, in order, to the subject of Immigration, which I have not yet disposed of.

Whether *Coolies* or *Africans* should be our people, is, unfortunately with us at present, less the question, than the demand for population itself of almost any kind ; but if we are to have a choice, it is my opinion and I believe the general one, that Africans are to be preferred, and may be obtained at an infinitely less cost than Coolies. We have yet to derive much information respecting Africa, and we have amongst us practical men, Officers of the Army and Navy who have been a great deal there, and on whose knowledge I would more readily rely than on that of travellers generally, reports, &c. &c. ; and we have also Alexander Barclay, Esq., Member of Assembly, Jamaica, a man well-known here, and in the mother country, who, in a most spirited manner, visited Sierra Leone in person, and brought us three ship-loads of Immigrants, accompanying them himself on the voyage, all of whom have done well—and from Mr. Barclay much information may be obtained. Africans are near to us, they are at once at home in their arrival on the West Indies, and not unfrequently meet many of their old countrymen. Their habits and feelings being alike, they intermingle with each other in a manner convenient for all parties. I am not aware that so much can be said of Coolies ; but I would not venture a hasty opinion against

those people, perhaps, as yet, insufficiently tried. **CHINESE** have been proposed, and as agriculturists I believe they surpass most others ; besides, their practical *knowledge of irrigation* and of *manures* would be a recommendation that a few, at all events, should be introduced ; and, if on trial, it be found advantageous to import them into the West Indies, it is not impossible that they may finally find their way to us through the Sandwich Islands and Panama, by a high road from China, that bids fair, ere long, to be opened ; meanwhile, any number of them, we are informed, can at any time be obtained at *Singapore*, whither they come in great numbers from China in quest of employment. Singapore being now a great emporium in the East, and almost any thing being there obtainable, leads us to a reasonable belief, that a good selection could be made at that port ; and as regards length of voyage, &c., it is about the same as from Calcutta. Of *European immigrants* I am much in favor, where they are not of necessity too much exposed to the heat of the climate, but as tradesmen, ploughmen, superintendants in various ways, and indoor servants they are highly desirable. Kingston alone, could in this way, beneficially employ ten thousand or more, and find it to account. By the introduction of white servants I obviously do not mean such scum of the earth as this island was degraded with a few years since. No immigrants should in future be brought to the West Indies, but such as will give useful services for their wages, and in all ways add to the improvement of the country.

I am not at this moment aware what was the former population of *Java*, but I am induced to believe that its present enormous amount (upwards of 6,000,000) has been thus increased by immigrants arriving there from China, Siam, and Malaya, as well as from Borneo, Celebes, and other adjacent islands.

It has been recently argued that because *Java* success-

fully competes with *Cuba*, (an island of very nearly similar extent) so ought we, free-men, to compete with the slave-holder ; but it was not fair to omit the important fact that *Java* and *Cuba*, though nearly of like extent, are greatly disproportioned in *population*, the former being to the latter as *six to one* ; and labour can be obtained for a few pence per day. The want of labour will, doubtless, be the means of introducing machinery to a great extent into the West India Colonies. Strikes, or or refusal of workmen in England to give their labour for reasonable recompense, was the prime cause of such general introduction of machinery there ; and thus an evil, in the end, worked good. But still there is very much manual labour with us indispensably necessary ; and until we are abundantly supplied with human labour, as well as machinery, so long will it be necessary to continue the introduction of both. Labour, in certain districts of Jamaica and the other West India Colonies, has, I believe, been proven to be plentiful ; but that it is so generally, and to the extent wanted, has not been shewn. Labour and Capital are essential to each other—the former to the latter especially,—for the best authorities invariably have decided, that although labour may be made valuable without capital, still capital is useless without labour. If we are permitted to obtain immigrants from Africa, the distance thence to the West Indies is but trifling.

It has been stated by competent persons that steamers, on account of the certainty, as well as quickness and comfort in their voyages, could be profitably employed in the transport of the immigrants ; in which case the distance from Africa (the nearest point) to the West Indies is not more than eight to ten days, and to Jamaica about twelve to fourteen. Surely these are considerations worthy of the most attentive enquiry.

Again : regarding the great importance of labour, *Bar-*

bados is a striking example. In point of size it is about one-fortieth that of the island of Jamaica,—in population about one-third, and in sugar production one-half. In like manner may *Mauritius* be compared ; and although it is only about one-tenth the size of Jamaica, it has about one-third its population, and *makes* almost *more sugar*, occasioned by recent great increase to its population by immigration. Surely these facts will carry some weight.

I trust that I have said enough to shew that *immigrants* to the West India Colonies are *absolutely indispensable*,—that they will be kindly treated, remunerated, and protected ; and that, with proper arrangements, they can be supplied to us from various parts of the globe in abundance,—and that it will be (with Africans at least) an act of *humanity* displayed towards them, that they should be sent to us. If I have shewn this, I hope it is enough ; but, as it is better to have the opinion of the many rather than of the few, on the necessity of immigrants, I extract from the minutes of the House of Assembly of Jamaica the names of the following gentlemen who were examined before a committee of that House, touching the want of labour—every one of whom, with one or two exceptions, declared there *was* a want of labour :

NAMES OF GENTLEMEN EXAMINED BEFORE THE COMMITTEE :

The Honorable James Maxwell	The Honorable Thomas M'Cornock
Robert Gregor, Esquire	Henry Walters, Esquire
James Macfayden, M.D.	James Jenkins, Esquire
James Tuckett, Esquire	Stephen Hannaford, Esquire
George Price, Esquire	Samuel Rodgers, Junior, Esquire
Thomas Henney, Esquire	Colin Thompson, Esquire
Alfred Thompson, Esquire	Philip Bailey, Esquire
John Dillon, Esquire	William Smith, Esquire
Louis Mackinnon, Esquire	Frederick Peart, Esquire
John M'Lean, Esquire	Paul King, Esquire
Richard Fothergill, Esquire	George D. Baggett, Esquire
Rev'd. William Henry Evarts	Michael Taaffe, Esquire
Charles Hardie, Esquire	David Smith, Esq.

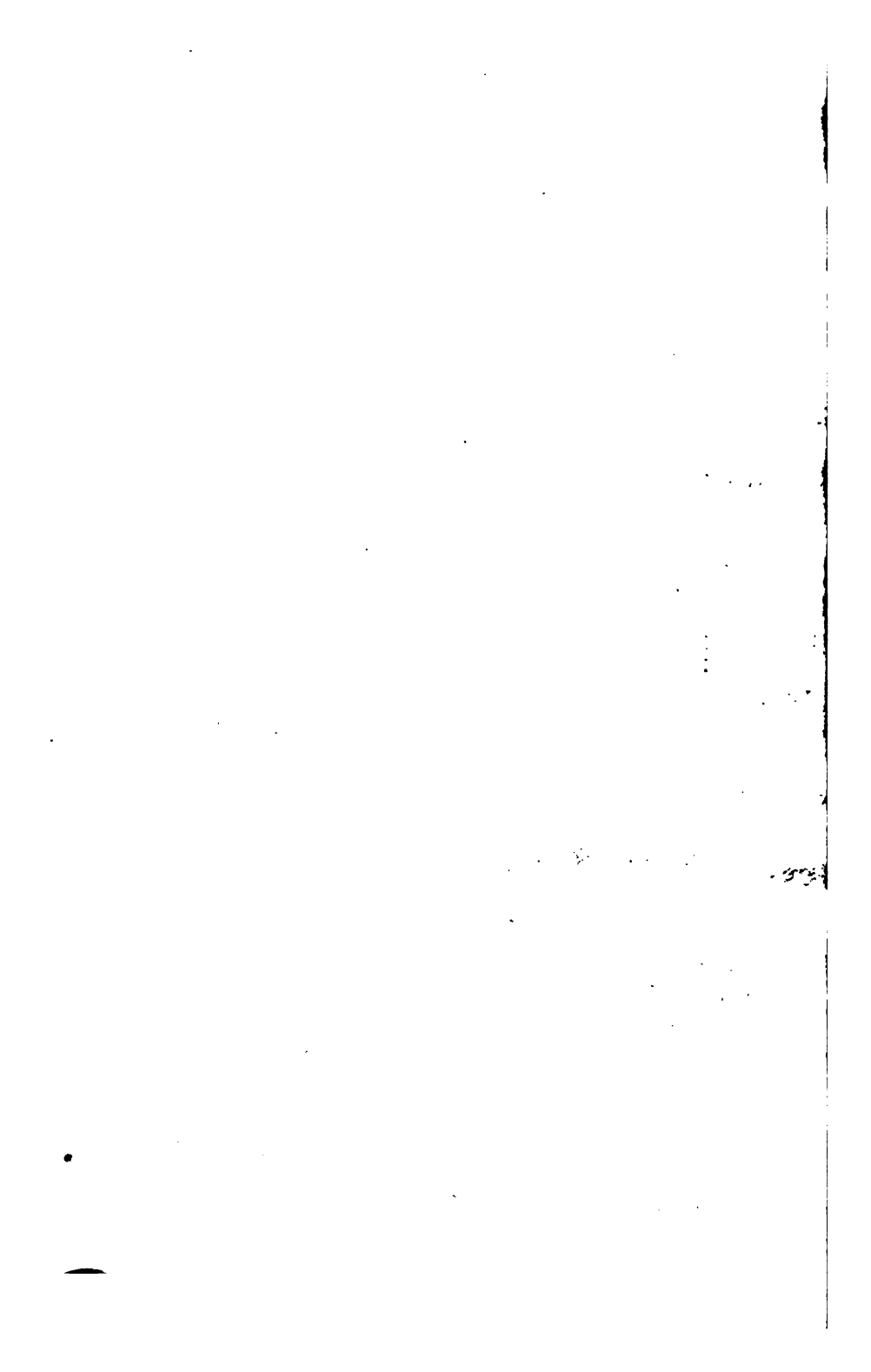
All of these are men of high character, intelligence and practical experience as planters, and I conceive it impossible to treat their opinions otherwise than with much attention and deference.

CHAPTER IV.

HAVING now taken a general review of the West India Colonies, their value, and fitness for the grand staples of tropical agriculture, their want of labour, as well as of capital, and their capabilities of high improvement, I will next lay before the reader a few useful tables, which will shew at one view, the past and present condition of the West Indies, and Jamaica particularly. These tables may afford many useful hints, and much information ; and although they do not profess to be minutely accurate, still they are sufficiently so for the general purposes for which they are now used :

A Statistical View of the West India Colonies, IN THE YEARS 1831-1835-1841-& 1844.

	Area in Square Miles	Population in 1844, per Census.	Population to the Square Mile.	SUGAR IN TONS.—EXPORTED.				COFFEE IN LBS.—EXPORTED.	
				1831.	1835.	1841.	1844.	1831.	1844.
Jamaica	6,250	377,433	60	71,454	57,438	26,429	26,496	15,644,072	7,632,483
Barbados	164	122,198	745	18,952	17,234	12,855	16,435	2,420	24,050
Dominica	280	22,462	80	2,816	1,250	2,117	2,640	613,360	71,206
Grenada	125	28,923	231	9,288	8,514	4,213	3,929	5,863	1,148
Antigua	108	36,178	335	9,658	8,700	7,205	11,257	212	425
Montserrat	47	7,365	156	1,306	813	541	628	.....	.....
Nevis	20	9,571	478	2,496	1,981	606	1,479	4	.....
St. Christopher	68	.....	.....	5,098	4,337	3,196	5,985	.....	9,993
St. Lucia	275	21,000	76	3,618	2,736	2,555	3,469	89,349	33,814
St. Vincent	130	27,248	209	11,083	9,750	5,510	6,781	44	.....
Tobago	102	13,208	129	6,062	3,863	2,408	2,465	.....	.....
Tortola & Virgin Islands...	.....	6,689	.....	777	691	419	122	.....	.....
Trinidad	2,000	59,815	29	16,358	14,469	14,230	13,729	3,008	234,127
Bahamas	5,424	25,292	4	.....	.....	5	45	95,716	177,578
British Guiana	76,000	98,133	.....	.....	.....	.....	.....	.....	.....
Demerara	23,000	.....	1½	40,106	38,018	20,763	22,390	1,991,352	733,029
Essequibo .....	.....	.....	.....	.....	.....	4,503	4,790	.....	.....
Berbice	22,000	.....	.....	6,104	6,324	.....	.....	1,585,402	372,330
Honduras .....	.....	10,000	.....	.....	.....	.....	.....	.....	.....
Bermuda	20	9,930	496	.....	.....	.....	.....	.....	64
Anguilla	160	2,934	18	.....	.....	.....	.....	.....	.....



A N T I G U A.

**Square Miles 108.—Population in 1835, 35,500—in
1844, 36,178.**

YEAR.	SUGAR IN HOGSHEADS.	RUM IN PUNCHEONS.	MOLASSES IN PUNCHEONS.							
1828.....	14,976	4,169	6,540							
1829.....	14,016	4,523	5,042							
1830.....	15,646	3,590	8,215							
1831.....	12,612	2,180	8,149							
1832.....	11,092	1,705	8,231							
1833.....	10,911	1,697	8,019							
1834.....	20,921	2,380	13,780							
1835.....	14,803	1,938	8,476							
1836.....	11,741	942	6,734							
1837.....	5,434	436	3,074							
1838.....	18,534	1,134	12,189							
1839.....	15,935	1,032	9,787							
1840.....	16,008	1,027	10,178							
1841.....	12,114 *	594	7,657							
<table><tr><td>*1842.....</td><td>7,370</td><td rowspan="3">} TONS.</td></tr><tr><td>1843.....</td><td>8,670</td></tr><tr><td>1844.....</td><td>11,257</td></tr></table>				*1842.....	7,370	} TONS.	1843.....	8,670	1844.....	11,257
*1842.....	7,370	} TONS.								
1843.....	8,670									
1844.....	11,257									



S T. L U C I A.

Square Miles, 300—Population, 16,017.

Imports into Great Britain in 1838 & 1839.

YEAR.	SUGAR IN CWTS.	RUM IN GALLONS.	MOLASSES IN CWTS.	COFFEE IN LBS.	COCOA IN LBS.
1838...	66,691	7,490	4,780	143,200	16,200
1839...	50,215*	14,050	11,030	84,000	35

The above is in round numbers.

ACRES. { 9,500 under crops
 { 4,700 in pasture.

* 1844.....69,383 cwts.

BRITISH GUIANA.

COUNTRIES.	POPULATION IN 1834.				CHIEF TOWN.
	WHITES.	FREE COLORED.	APPREN- TICES.	TOTAL.	
Demerara } Essequibo }	3,006	6,360	65,556	74,992	Georgetown
Berbice....	570	1,651	19,359	21,589	New Amsterdam
Total....	3,576	8,011	84,915	96,581	

Population—1840.....98,000 } (“ Schomburgk.”)
Aborigines.....17,000 }

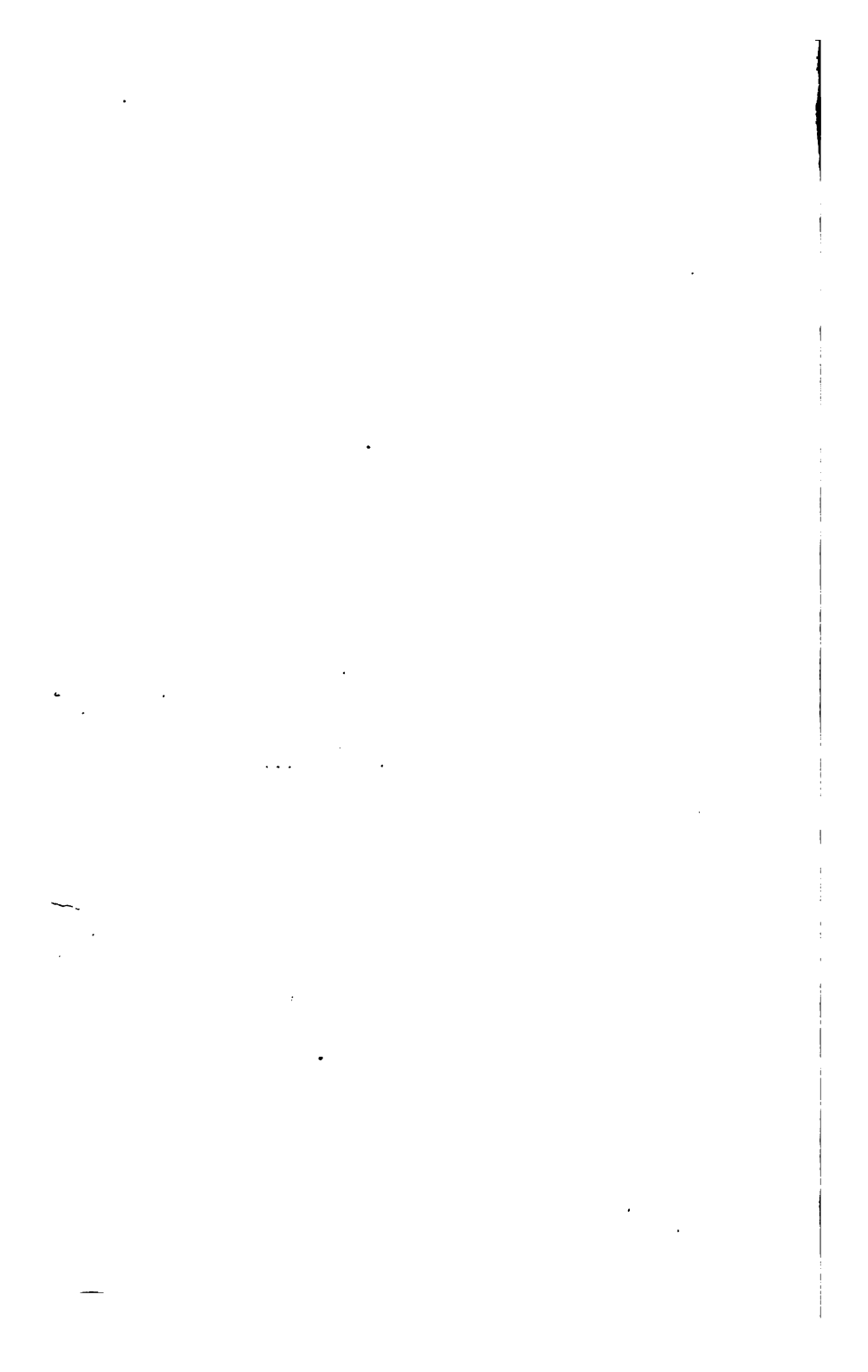
IMPORTS INTO THE UNITED KINGDOM,
Of the following Staples from **BRITISH GUIANA**, in the six years
ending with 1839.

YEAR.	SUGAR IN TONS.	COFFEE IN LBS.	COTTON IN LBS.
1834...	38,898	2,527,648	1,288,789
1835...	44,343	3,166,091	1,140,361
1836...	53,892	3,467,442	1,080,697
1837...	47,169	5,118,642	302,517
1838....	41,765	3,799,298	663,639
1839....	28,342*	1,673,232	551,325
Value of Exports in 1836.....£2,135,379			
Ditto ditto 1839..... 986,013			
* 1844—Demerara and Berbice.....27,180 tons.			

BRITISH GUIANA.

The quantity of the following Staples raised in British Guiana,
from 1832 to 1838, inclusive—(in round numbers.)

YEAR.	SUGAR IN LBS.	RUM IN GALLONS.	MOLASSES IN GALLONS.	COFFEE IN LBS.	COTTON IN LBS.
1832	96,300,000	2,800,000	4,500,000	6,400,000	1,150,000
1833	99,100,000	2,500,000	5,100,000	4,500,000	955,000
1834	81,000,000	2,600,000	3,300,000	3,035,000	926,000
1835	107,500,000	3,700,000	3,100,000	3,065,000	868,000
1836	107,800,000	2,900,000	4,000,000	5,800,000	657,000
1837	99,800,000	1,900,000	3,400,000	4,000,000	800,000
1838	88,600,000	2,000,000	3,100,000	3,100,000	642,000



B A R B A D O S.

Sugar Exported from Barbados into the United Kingdom, in the following years :

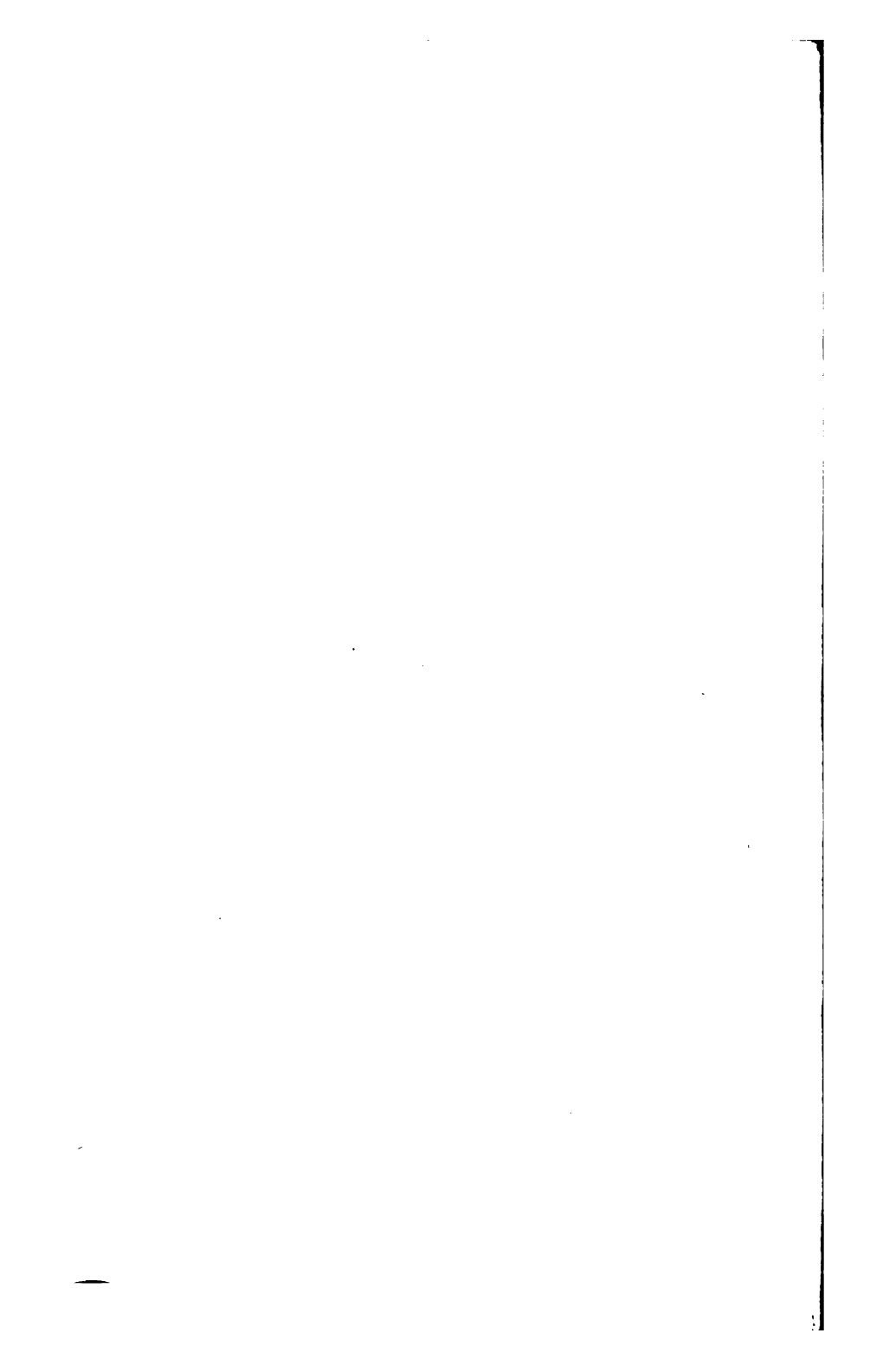
YEARS.	SUGAR IN TONS.
1831.....	18,952
1832.....	.....
1833.....	19,250
1834.....	19,726
1835.....	17,234
1836.....	18,671
1837.....	22,205
1838.....	23,679
1839.....	19,755
1840.....	10,374
1841.....	12,855
1842.....	15,628
1843.....	17,474
1844.....	16,435

M O N T S E R R A T.

Pop. in 1831, 7,600—in 1835, 7,600—in 1844, 7,365.

Sugar Exported from MONTSERRAT from 1836 to 1842 & 44.

YEAR.	HOGSHEADS.
1836.....	698
1837.....	506
1838.....	1250
1839.....	730
1840.....	789
1841.....	770
1842.....	1100
1843.....	445
1844.....	627
} TONS.	



T R I N I D A D.

Area 2000 Square Miles—Population in 1844, 59,800.

EXPORTS FROM TRINIDAD IN 1839.

EXPORTED TO	SUGAR—lbs.	COTTON—lbs.	COFFEE—lbs.	COCOA—lbs.	RUM—gals.	MOLASSES—cwts.
Great Britain.....	28,473,506	110,242	82,689	630,322	8,200	809,400
West Indies.....	556,204		93,136	112,610		1,800
North America...	179,144	800	160	7,426	1,566	23,409
United States....				59,840	180	
Other States.....		10,000		1,761,790		
Total.....	29,208,854*	121,042	175,985	2,571,988	9,946	834,609

* The Exports to the United Kingdom in 1844, were 13,729 tons Sugar.

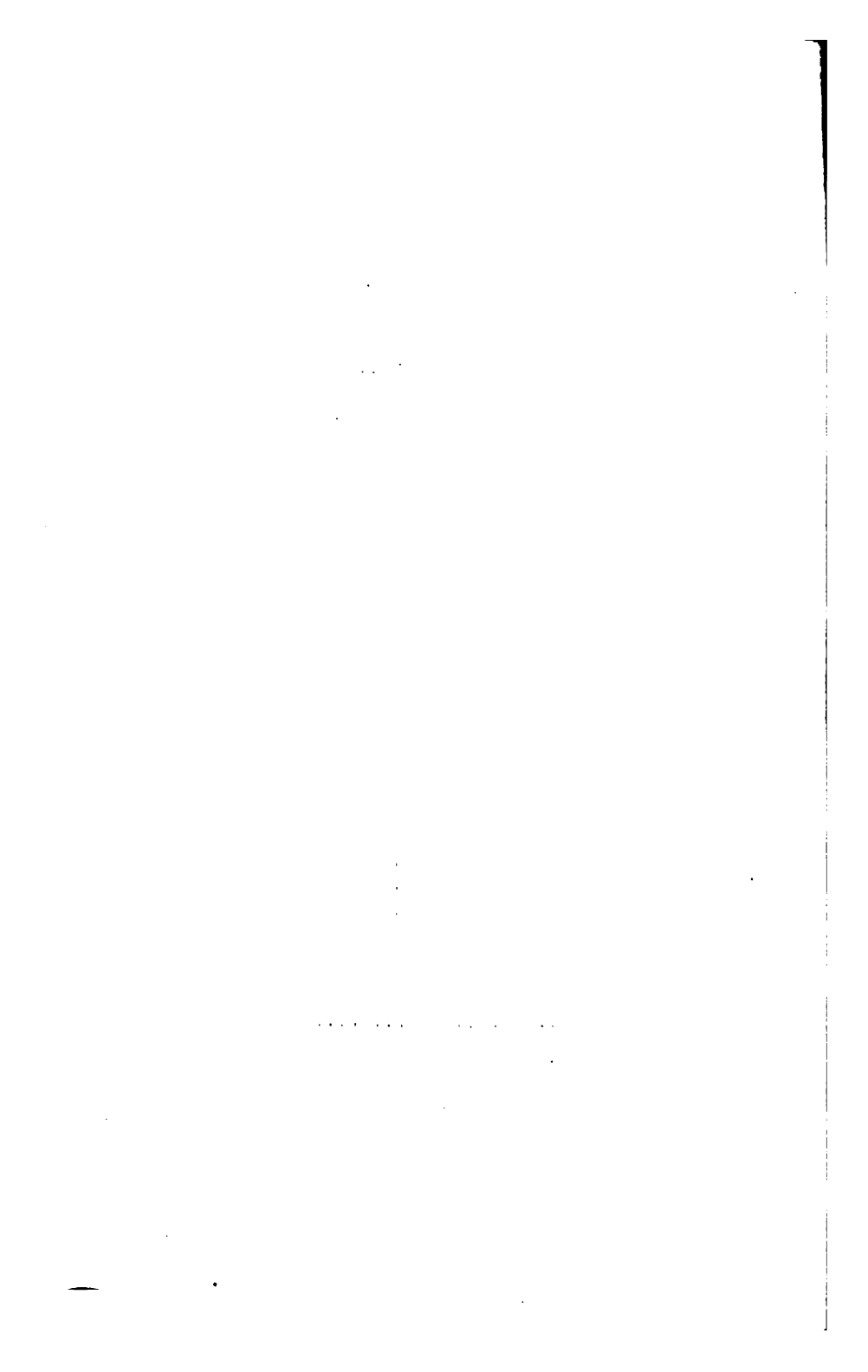
T O B A G O.

Population in 1844, 13,308.

Shipped from TOBAGO within eight years.

YEAR.	S U G A R.			R U M.		MOLASSES.	
	HHDS.	TRCS.	BRLS.	PHNS.	HHDS.	PHNS.	HHDS.
1834.	5392	470	228	2875	139	1181	18
1835.	5058	374	447	3289	152	549	..
1836.	5836	325	654	3377	252	839	77
1837.	7390	320	813	3903	398	1115	68
1838.	4580	304	393	2539	187	638	12
1839.	5060	314	572	2821	125	531	16
1840.	3930	246	373	2029	84	392	13
1841.	2460	225	222*	1064	53	207	74

* 1842.....	2,345	}	TONS.
1843.....	2,291		
1844.....	2,465		



S T. V I N C E N T.

Area 8500 acres—Population, 26,533, by last Census.

And its Exports to Great Britain in 1839, 1840, & 1841.

YEAR.	SUGAR IN CWTs.	MOLASSES IN CWTs.	RUM IN GALLONS.	COFFEE IN LBS.	COCOA IN LBS.
1839..	151,900	34,051	189,700	35	760
1840..	161,020	16,530	145,900	700	6420
1841...	110,200*	31,580	89,000		1760

The above is in round numbers.

About one-third of the Island is under cultivation.

* 1844.....135,637 cwt.

D O M I N I C A.

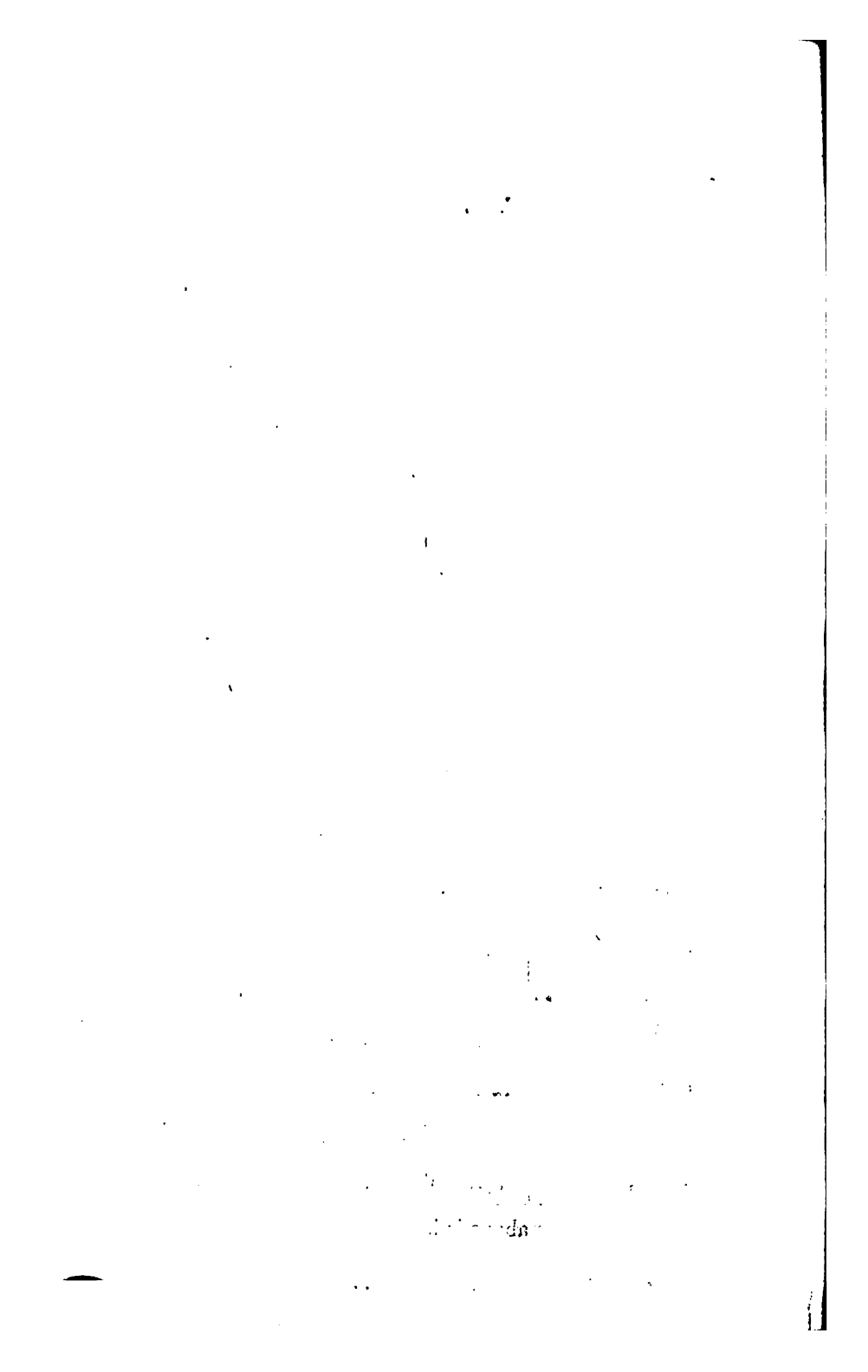
Area 186,436 acres—Population in 1844, 22,469,

And its Exports to Great Britain in 1835, 1837, & 1838.

ARTICLES EXPORTED.	1835.	1837.	1838.
Sugar, unrefined	25,014 cwt.	33,724 cwt.	48,290 cwt*
Rum.....	7,300 gals.	9,500 gals.	17,000 gals.
Molasses.....	2,700 cwt.	3,961 cwt.	7,893 cwt.
Coffee.....	112,500 lbs.	248,100 lbs.	383,000 lbs.
Cocoa.....	685 lbs.	1,900 lbs.	1,000 lbs.
Arrowroot.....	3,160 lbs.	5,200 lbs.	2,270 lbs.

The above is in round numbers.

* 1844.....52,803 cwt.



ST. CHRISTOPHER.

Area in Square Miles..... 68

Population in 1844.....23,177

Population to the Square Mile..... 340

Sugar Exported from ST. CHRISTOPHER into the United Kingdom,
in the following years.

YEARS.	SUGAR IN TONS.
1831.....	5,098
1832.....	4,030
1835.....	4,337
1837.....	3,663
1838.....	4,679
1839.....	6,777
1840.....	4,719
1841.....	3,196
1842.....	4,780
1843.....	3,868
1844.....	5,985

N E V I S.

Area in Square Miles..... 20

Population in 1844.....9,571

Population to the Square Mile..... 478

**Sugar Exported from NEVIS into the United Kingdom, in the
following years.**

YEARS.	SUGAR IN TONS.
1832.....	1,992
1835.....	1,981
1837.....	1,213
1838.....	1,270
1839.....	1,836
1840.....	1,392
1841.....	606
1842.....	1,192
1843.....	1,232
1844.....	1,479

G R E N A D A.

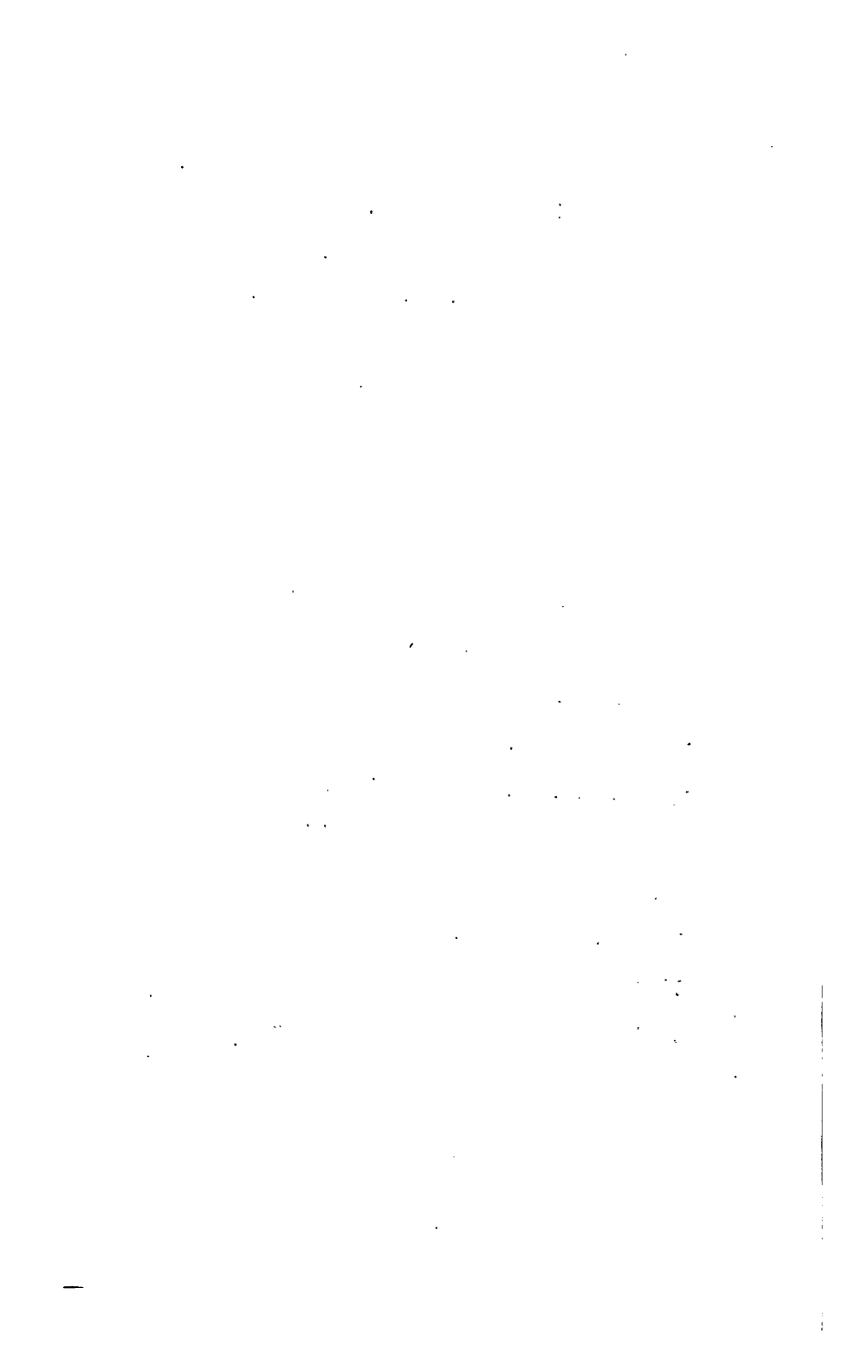
Area in Square Miles..... 125

Population in 1844.....28,923

Population to the Square Mile..... 231

Sugar Exported from GRENADA into the United Kingdom, in the
following years.

YEARS.	SUGAR IN TONS.
1832.....	9,411
1835.....	8,514
1837.....	8,096
1838.....	7,839
1839.....	5,863
1840.....	4,449
1841.....	4,213
1842.....	4,191
1843.....	4,296
1844.....	3,929



From the foregoing tables it will be seen that the Island of Jamaica (taken as a sample of the others) produced in former years, as compared with the present, an amount of sugar perfectly astonishing; and I have endeavoured to trace the causes of decline, and have marked them down in the chart or diagram, which I have attempted to give of it.

If, then, we produced in the Island of Jamaica in 1808, 132,000 hhds.* and in 1846, only about 35,000, the cause of difference, surely, seems a subject of the deepest importance for careful investigation. In the chart which I have endeavoured to give of it, the chief causes of decline appear to be emancipation of the people, and the destructive droughts to which the West Indies are occasionally subject; and these evils in our present situation operate against us in so many ways as perfectly to paralyse every effort which the best directed skill and foresight can make. Our agricultural operations, greatly improved as they are, all go for naught when opposed to droughts on the one hand, and want of labour on the other: after a long continuance of the former, rains fall, and the Planters call for labour, but the labourer has his own little property to attend to, which has equally suffered from the same cause, possibly, and he, naturally enough, prefers to attend to his own interest, than to that of the planter! Thus it is, and money to almost any extent, at such seasons, will not purchase his labour. The Planter's well-laid plans are frustrated, and he becomes disheartened, perhaps reckless, and sees his acres, which should have given him tons, scarcely yielding hundred weights. This state of things cannot last. But is there a remedy? Yes, I think there is; and, with the requisites which I have already named, viz, labour, capital, machinery, manures, &c. &c., I will

* In 1802 it produced 143,000 hogsheads.

add, as a main-spring to the whole, that important and un-failing cure, a well-directed system of IRRIGATION,

So much for centuries past, has been written and practised on this most valuable subject, that little would seem left to offer to the reader. If we can, however, amongst ourselves in the West Indies, bring it into favourable notice, we shall have attained an important step towards its general adoption.

The conductors of the Press of Jamaica seem to be much in its favor, and it will be creditable to them so to continue. It is to be regretted that in the West Indies, and I believe in the Colonies generally, the Press is not better supported:—it is a most powerful and valuable engine in all other countries, and why not in this? There is no lack of talent in its conductors, and all I believe are men entirely identified with the welfare of the Colonies, and possess the power to do a vast amount of good.

We should be unanimous, and act powerfully in concert for the accomplishment of every desirable object, whatever it may be. The heretofore complained of “Absenteeism” which doubtless did its share of harm, is now becoming of less extent. Many estates have changed hands, and their owners in many instances are on the spot, full of improvements. The remnants too of slavery ideas, complexional distinction, exclusive rights &c. and all such wrong feelings seem fast going to their long account—and liberality of mind, and sentiments towards talent, education, and worth whencesoever derived, have taken their place; and, as a former governor of Jamaica (the amiable Lord Belmore) predicted, the resources of this beautiful Island, (we would hope) may yet be developed.

At this moment in many parts of our vast globe, *Irrigation* is extensively used, and there wholly relied on for *certainty of crops*. It has in no instance failed where

properly applied,—and the wonderful and gigantic works still to be seen in Eastern and other countries, will doubtless again recover from the ruin which barbarous ages have inflicted. Even in *St. Domingo*, so near to us, and likewise *Mexico*, we have the ruins of immense structures for Irrigation, which Humboldt saw, and describes, as he does every thing else, with so much accuracy.

In Jamaica, Irrigation can be extensively applied, in many valuable districts that could not otherwise be profitably cultivated without it, and I shall presently come to details respecting them. The other West India Colonies equally require Irrigation, and can render it available. Most of them have some plains and rich valleys more or less extensive; they suffer from occasional droughts; yet have water, which judiciously managed can be turned to an incalculably valuable account in Irrigation.

In short with abundance of *labour, fertilizing matter, water and capital* to begin with, so as to *lay a substantial foundation*, the West India Colonies, from one end to the other, may be perpetuated as steady and profitable Sugar-producing countries, and I will unhesitatingly predict, that (wherever Irrigation is concerned) the most trifling variation of crops will not take place. If this be the fact or even nearly so, as I feel assured it is, is it not equally important to the mother country as it is to us? I profess not to enter into a political view of the subject on which I write, but I feel that every honest English heart will say “*protect the Colonies, until we have efficiently helped them to protect themselves!*” That is all we ask, is what we are entitled to, and is what the proud, noble British Nation would scorn to deny. I have dwelt on this subject more than I wish, but I think it is important that those of whom we ask fair and reasonable help, should know that we are worthy of assistance, and entitled to it.

However much I desire it, in this pamphlet, I cannot enter more into details of each West India Colony separately than I have done; I trust therefore that in taking one or more districts of the Island of Jamaica, and giving sufficient details to shew how immensely they can be benefitted by the appliances I propose, I shall have done enough to set the plan fairly at work here, and give it as an example and proof to all the other West India Colonies, how importantly the same principles will work for them.

CHAPTER V.

LIEBIG, Johnson, and other eminent men have satisfactorily shewn us, how incalculably valuable town manure, and all matter and rubbish, &c. collected in such quantities in and about cities, towns, and villages, are to the fertilizing of the adjacent country, in the prosperity of which they all are, more or less, directly interested. If, then, we take as an example our own *City* and sea-port of *Kingston*, with its 40,000 inhabitants,* its adjacent rich and extensive plains, exceeding 154,000 acres of mostly rich, and perfectly flat ground, intersected and bounded by several large rivers, and some bog land, capable of the most profitable system of *drainage*; and besides being at this moment traversed for a distance of fifteen miles, by a highly finished, substantial *Railway*, now in profitable operation, and having forty-two miles more of a continuance of this *Railway* now about being commenced, extending through the flat, and rich district to which I have alluded; † and this flat too, possessing another town, (*Spanish Town*) with about 5,000 inhabitants, together with several small villages, and numerous Pens, or grazing Farms, and 50 to 60 fine Sugar Estates, with room for five times as many more,—surely all these give a magnificent field for the profitable investment of capital, which no part of the world, for its extent, can exceed.

To save the time of the reader, I will at once refer him to the outline MAP herewith, of the district I propose to operate on:—this map professes merely to shew the leading features of my subject; namely, the flat from the hilly country—the towns and sea-ports, the rivers, and

* Some have stated it at a higher number.

† See the Map.

sources of supply, and general mode of distribution of that important agent, water—the actual course of the present Railroad, and the others now about being commenced and projected—the general position of all the lands at this moment cultivated in canes, and the addition I propose to make to it—and the remainder generally, how occupied, or what suited for, and such other information as will be found written on the map itself.

On this extensive district, although Sugar is the chief cultivation, there are not now, in good seasons even, more than 5 to 6,000 tons of Sugar produced on it! Can any thing more forcibly arrest one's attention than this fact, that 154,000 *acres* with such extensive advantages, yield only 5 to 6000 *tons*, where five times the amount could easily be produced? I shall proceed to enumerate the Sugar Estates in these districts, with the amount of their crops as nearly as may be estimated.

IN THE PLAIN OF LIQUANEA, NORTH OF KINGSTON.	
AVERAGE CROP.	
	CROP IN HHDS.
1—Constant Spring.....	} 300
2—Spring Estate.....	
3—Norbrook.....	
4—Cherry Garden.....	
5—Shortwood.....	
6—Barbican.....	
7—Hope.....	
8—Papine.....	
9—Mona.....	
10—Chancery Hall.....	
11—Maverly.....	
12—Waterhouse.....	
13—Pembroke Hall.....	
14—Molynes.....	

ST. CATHERINE.

AVERAGE CROP.

	CROP IN HDS.
1—Taylor's Caymanas.....	450
2—Ellis's Caymanas	
3—Dawkin's Caymanas.....	
4—Twickenham Park.....	

ST. DOROTHY.

AVERAGE CROP.

	CROP IN HDS.
1—Nightingale Grove.....	1200
2—Cherry Garden.....	
3—Bushy Park.....	
4—Amity Hall.....	
5—Colbeck's.....	
6—Whim.....	
7—Lodge.....	
8—Kelly's.....	

CROPS OF VERE, AND PART OF CLARENDON.

1—Brazilletto.....	19—Ashley Hall.....
2—Moreland.....	20—Caswell Hill.....
3—Hill Side.....	21—New Yarmouth.....
4—Raymond's.....	22—Old Yarmouth.....
5—Bog.....	23—Dunkley's Dry River.....
6—Perrin's.....	24—Bowen's Hall.....
7—Sutton's Pastures.	25—Rodon's Dry River.....
8—Chesterfield.....	26—Paradise.....
9—Amity Hall.....	27—Exeter.....
10—Pusey Hall.....	28—Springfield.....
11—Moneymusk.....	29—Halse Hall.....
12—Greenwich.....	30—Parnassus.....
13—Carlisle.....	31—Denby.....
14—Harmony Hall...	32—Chateau.....
15—Salt Savanna.....	33—Seven Plantations
16—Knight's.....	34—Longville
17—River Side.....	35—Clarendon Park...
18—Gibbon's.....	36—St. Jago.....

These 8 estates are on the great plain, but in the parish of Clarendon.

The foregoing 36 Estates are on the great plain, and their average crop may be estimated at about 4,000 hogsheads.

Here, then, we have a list of the Sugar Estates, on this great plain: viz the Estates of Liguanea, those of St. Catherine and St. Dorothy, and likewise those of Vere, and part of Clarendon, producing, in all, 5 to 6000 tons of Sugar! Referring again to the map, I would direct the reader's attention to the bright green coloring on it, which indicates the present cane cultivation, which, with addition and alteration, I propose at once to proceed with, and which could, by the present supply of manure and water, be continuously and profitably cultivated. The present extent and proposed increase of cane land, taken together, would be enough to produce, with high cultivation, about 28,000 tons of sugar, and much more could be produced on this plain, with a sufficient *accumulation* of water, but as this would involve the expense of *tanks* and immense *reservoirs*, I will dispense with them for *the present*, at least, and simply use the water which I can conduct along the surface naturally, with that which I propose to raise to a moderate height to command the ground to be operated on. The map accompanying this pamphlet shews particularly the sources and the directions of the supply of water for irrigation purposes: there is a plan, also, of the city of Kingston, giving a general idea of the mode of cleansing the city, and preserving the vast amount of fertilizing matter, which can be gathered in it. This amount exceeds the supply of irrigating water; but the valuable Sugar districts of *Clarendon* and *St. Thomas in the Vale* and *Luidas*, will consume a vast portion of it, and (with labour) rail or tram-roads, and *central manufacturies* they will immensely increase their crops.

These districts are highly seasonable, and do not require irrigation, and have the advantage of water-power for their mills, but they want labour and manure. The plan which I propose will supply both, and the rail or tram-road will relieve the *grower* and the central manu-

facturer from the necessity of being any longer the *carrier* : of this great advantage the Planters, both of St. Thomas in the Vale, Luidas, and Clarendon are so sensible, that they have at this moment plans in motion, to obtain them ; and of their success there cannot be a doubt.* A large portion of the manure may also find its way along the great contemplated line of railway which, there is every reason to believe, will be carried out to Montego-Bay—a measure which will be found indispensable as the population and culture of the Island increase, and other events require.

Looking then to the immediate advantages to Jamaica of the plans which I propose, we may fairly calculate on an increase, even with our present labour, I hope, in these few districts which I have treated on, of about 34,000 tons, making in all about 48,000 tons, instead of about 14,000 tons, which the following table will pretty correctly shew :—

DISTRICT.	PRESENT PRODUCE IN TONS.	THE CROP AS INCREASED BY IRRIGATION & MANURE
Liguanea.....	300	725
St. Catherine....	450	10,000
St. Dorothy.....	1200	6550
Vere.....	4000	10,050
Clarendon	5000	8800
St. Thomas in the Vale	2500	10,000
Luidas Vale.....	700	2000
	14,150	48,125
		14,150
	Increase.....	32,975

* The Honorable Edward Thompson, and Mr. Price of Worthy Park, have greatly exerted themselves in these undertakings, and the latter gentleman, too, in some excellent remarks on that valuable subject irrigation.

The first column in this table shews the quantity of Sugar now usually made in the respective districts, set opposite ; the second, the crops as increased by the means to be employed ; and I will shew how the increase arises : first, in *Liguanea* there is a scarcity of water ; and to accumulate it in tanks and reservoirs for irrigation, at the *commencement* of my plan, would be more expensive than I would now venture to offer to the public, although I hope this will be done hereafter ; and, moreover, the numerous country villas and residences in *Liguanea* would fully consume the greater portion of all the water that could be now thrown upon that plain. Besides, the City of Kingston and its improvements will, likewise, require a considerable share of it. A portion of *Liguanea*, to the extent of about 400 tons of Sugar, therefore, but not more, (without tanks and reservoirs) could be advantageously and profitably produced by irrigation.

Next, for *St. Catherine* : the fine estates of the Caymanas, and the rich lands of Salt Ponds adjacent, together with the abundant supply of water from the Rio Cobre, and that which can be raised from the lagoon at that place, (and which will, at the same time, *drain* in a most effectual and profitable manner, many hundred acres of fine, rich land, highly suited to the growth of Sugar) will, with the greatest ease, produce an increased crop of about 10,000 tons.

St. Dorothy has a considerable amount of cane land, and there would be water sufficient for it from the Rio-Cobre and Bower's River to produce about 7000 tons.—The immense *pens* and *grazing farms* adjacent to, and extending some distance from, the Rio Cobre would also require a considerable body of *water*, not for irrigation but for *stock*,—and I am of opinion that the district round Spanish-Town, thus watered, would supply cattle and

other stock at all times more than sufficient for the markets of Kingston, Spanish-Town, the Shipping, Troops, &c. &c. Every body knows the value of an abundant supply of water to stock in droughts.

The *Spanish-Town Water Works Company* pay a considerable sum per annum, which the plan proposed will greatly diminish, and effect a great saving to that Company. Besides the numberless purposes to which water in and around parched, dusty towns, such as are in this island, can be applied, it is endless here to calculate. That the enormous body of water supplied by the *Rio Cobre* will be collected in *dams, reservoirs, tanks* &c. at a *future period*, and be ^{used} ~~issued~~ profitably for purposes of *irrigation*, seems almost certain; but as yet, in Jamaica, beyond a few estates, there is nothing in the shape of irrigation worthy the name—and its invaluable uses are scarcely, therefore, sufficiently understood. The lower part of St. Dorothy will also supply a considerable portion of water from *Bower's River*, which can be turned to profitable account. I may here remind the reader that all the rivers, streams, and lagoons of water, which I propose to use for purposes of irrigation, I have carefully measured myself, and caused others to be measured in the height of the most severe *drought* (in April in this year, 1846) which has been ever known to afflict Jamaica, and I have found the supply for the purposes I would propose to use it quite abundant. This I beg to impress on the reader's mind as a point of the greatest importance: it is, in short, the very life and soul of the plans I propose, and no permanent crop, in dry districts, can be calculated on without it.

For the *Parish of Vere* we find in the table 4,000 tons, as its crops in favourable years, and 10,050 tons as the increased crops:—this in proportion to the extent of flat country seems very small, but the supply of water here is

less abundant, or at least less available than that of the Rio Cobre. The *Rio Mino* which appears so large has less water than the *Cobre*, still by a proper economy of the water, much waste might be avoided, and at the same time the water power to the Clarendon estates' mills rendered more effectual, steady, and less expensive.

I am of opinion that when the details of this plan come to be worked out, *water power* also to the mills, or to the *central manufactory* of Vere, will be obtained from the Mino, as well for this purpose as for *irrigation*:—all the lower lands of Vere, extending some distance inland from *Milk River* towards *Kemp's Hill*, as shewn on the map, will be abundantly irrigated by the large bodies of water bursting out from the base of the mountains at *Swift River*, &c. and which will be raised by steam engines, windmills, or other power to a moderate height of about 100 or more feet, and this height will command an immense surface, seeing that the ground here is very flat. This body of water being almost inexhaustable, a succession of raising power and means of accumulation, it is possible, in time, to be made available to the whole plain. The heights in feet above level of the sea, are marked along the rail-road line, and thence slope gently to the sea. It is unnecessary to shew how easily the town manure can be conveyed along the line; and the produce, if so desired, returned by it. The line runs over a nearly level flat country for the entire distance of 54 miles from Kingston to Manchester. *Clarendon* or *St. Thomas in the Vale* and *Luidas* being seasonable, and irrigation rarely necessary, the increase will arise from the rail and tram-roads economizing their labour, and ^{supplying} employing them with manure especially, likewise bringing labourers to them quickly and easily from distant parts, and by ^{shipping} same means effect the transit of their crops to ports and ^{shipping} supplying places without trouble, or their own labour being expended on it.

CHAPTER VI.

FROM the general view of the benefits of IRRIGATION to the particular districts which I have described, it will be observed how easily the same principles which I have proposed to follow, can be alike beneficially applied to innumerable other districts throughout the Island of Jamaica, as well as the West India Colonies generally, where injury may be sustained from droughts. As regards Jamaica, if this system is well carried out, it is almost impossible to foresee its immense advantages. It will greatly cheapen labour, give *certainly to its results*, and increase crops—inasmuch as some of the most conveniently situated lands for sugar cultivation can be brought into use, that now from frequent droughts are almost useless; and enable the present harrassed planter to arrange his agricultural movements with that order and regularity which belong to all other works of civilized life. The process of a well-directed system of irrigation is of the most delightful kind, and enriches and beautifies in its progress the whole face of nature.

To a city like Kingston, with its noble harbour—the Dock-Yard, Naval Depôt of Port-Royal, and the Fleets which have been, and may again, be assembled at this ancient and important rendezvous, a well-cultivated adjacent country is of the utmost importance. A vast amount of the things necessary to its wants will be supplied by it; the markets, with the articles of daily consumption, such as meat, vegetables, milk, fruit, &c. will be supplied abundantly, regularly, and at a rate much under the present cost: there shall be no dread of scarcity; irrigation will keep the supply and demand upon a ba-

lance. The population of the city, too, is likely to increase, and certainly will that of the great plain which adjoins it, which shall be under the influence of irrigation, and be intersected throughout by railways.

It is no stretch of imagination to say that hundreds of labourers shall at the shortest notice (and many even from the towns) be conveyed away by the rail and the tram-roads to distant parts of this great field or plain, of which I have spoken, and be returned after a few days to their families with profit to themselves and satisfaction to their employers. The same is also applicable to the sugar districts of Clarendon and St. Thomas in the Vale and Luidas, by the contemplated rail or tram-roads. Numerous villages, doubtless, will also spring up at central points and stations, each forming as it were a nucleus for concentrated labour. Of the incalculable amount of Sugar which may yet be grown on this vast plain, as well as the other districts near to it, there is no doubt but that much of it will find its way into the port of Kingston, and its shipping and other interests become increased.

The spirited enterprise of the Railways cannot fail both to offer and derive the greatest possible amount of advantages from the plans proposed ; and, in short, all will work beneficially and harmoniously together, and to one end—the general good of the Island.

Of the immediate and tangible advantages to Kingston, of the plans which I propose the large amount of its population demands attention. Besides the advantages already enumerated, Kingston is capable of being greatly improved in many ways ; and I consider it so much connected with this subject as to dwell on it somewhat in detail.

Every one is aware of the unvarying remarks of all strangers who visit our shores, that “ *Kingston is the*

most rubbishy place in the West Indies." If it be so, and it is certainly bad enough, surely it ought not to continue so when we can stop it. Look to the beautiful little town of *Falmouth*, in this island, with its water-works, its neat, clean streets, and tidy refreshing look ; it is a pattern to Kingston. But Kingston has its Water Company too, and soon I hope will have its water ; still, however, this will go no further, I apprehend, than (as the Company contemplated) to supply ordinary domestic wants. I should doubt if it will supply abundantly baths, gardens, city sewerages, water the suburbs, &c. and keep clean, pure, and wholesome, the dwellings of this large, increasing and important city. Here I would remark that the Mayor (the Hon. Hector Mitchel) as head of the Authorities is continually publicly appealed to, on behalf of the city improvements, but it is too much to expect that he should be able to do everything. I conceive, however, that he will do this ; and he will have done enough, and for it he is eminently calculated, namely, giving his firm and able support in carrying out any well-digested plan which the inhabitants, or a company, shall submit, and which shall be obviously beneficial and practicable.

The first thing to be done for the improvement of the city, is to point out the *abundant supply of water*, which can easily be obtained. I propose to take it from the Ferry River,* beyond the Inn, and that suitable arrangements shall be made with all parties interested ; and the whole shall be supported by an act of the Assembly. In the plans proposed, it is entirely my aim that the *public benefit* shall be first consulted, and not that of individuals only, who might form a Company ; but at the same time I am so well convinced of the immense amount of that benefit to the public, that the Company will likewise largely participate in it.

* It can, if necessary, be obtained from other parts.

From the Ferry River I would raise a body of water to one hundred or more feet, according to the height of ground to be operated on. I would convey it away through the lower estates of *Liguanea*, within its reach, and any other adjacent lands to be irrigated, and from which when done, the stream should pass on to Kingston, in so powerful a body, as to leave no doubt about the perfect accomplishment of all the objects I have proposed.

The first improvement in Kingston would be to enclose *the Parade*, in the centre of the city, the cost of which is merely an iron railing to enclose it, with some brick or stone foundation work ; four gates, and a few gardeners' houses, &c. the first cost and future expense of which would be trifling ; and I would lay it out, and plant it with trees, &c. both as a profitable and ornamental garden. Numerous families would, by a small annual subscription, keep it up as a place of *recreation, use, comfort, and as a credit to the city*. The annual subscription to be very small, not greater than about £1 so as to give a fair return for the Company's outlay. The annual expense of the garden, with water judiciously distributed, would be very trifling, and the sale of fruits, vegetables, flowers, &c. would nearly defray it. This work (the enclosing the Parade) I recommend first to be done, because it can at once be perfected at a moderate cost, and give a sure and immediate income to the Company, and serve as part of the remaining works, such as centering at that place in one or more *reservoirs*, water sufficient for half of all the purposes of the city, (including streets, sewerages, &c. &c.); other reservoirs of course to be also erected on the highest ground of the city.

Next to the Parade I would propose the construction of the City Sewerage, after the great metropolitan plan by Mr Wickstead, one of the most eminent Hydraulic Engineers in England. The slope of the ground in King-

ston will admit of a large portion of the city being cleansed by the sewerage ; but as the main sewer will pass diagonally through it, a portion of the city must be cleansed by other means. This main sewer will conduct away to a reasonable and convenient distance to leeward of the city, the drainings, filth, and rubbish, to be disposed of for agricultural uses, as in England and other countries. That all houses, both of the poor as well as the rich, be furnished with abundance of water for baths, domestic convenience, washing, &c., which all alike so greatly conduce, and are so necessary to, *cleanliness* and *health* ; and these for *tropical countries* are of the very first importance. Kingston, with all these improvements, may be made one of the first cities in the Western Archipelago. Of the water requisite for the streets, I propose to make provision,—for it is no less necessary to lay the dust, &c. for the comfort and health of the inhabitants than it is at same time good matter with which to *preserve* in'repair these thoroughfares : moreover, it is an important consideration in this abundant form as *remedy against fire*, and will lower rates of insurance, &c., and do much general good.

Next to these great benefits, I shall point out another, quite as necessary—namely, a large Burying Ground, or *Public Cemetery*. The practice of burying the dead in Church-yards and places in the town, ought no longer, in a city like Kingston, to be continued, being so unlike the mode pursued in other countries, and so greatly endangering the health of the inhabitants. Besides the many superior advantages of Cemeteries which most of us have seen, they conduce to moral improvement in public taste and feelings, and at same time so simple, yet so beautiful, that it may be well said, they strikingly pourtray an earthly view of that Paradise to which we all look forward. Fine trees would speedily be reared also along

the walks, and in four or five years so perfect and agreeable a shade would be formed, that visitors could repair there at all hours of the day. Through the cemetery and garden there would be *agreeable walks* and quiet carriage drives for the public. An extensive vegetable garden, for the supply of the city, might also be advantageously established near by, because of the works of all requiring labouring men of some skill, judgment, and taste, in the care of the ground, the cultivating and training of plants, shrubs, trees, &c., and likewise preserving that neatness and order, without which all would be a failure. Watering would be also necessary to the plots of sward grass along the walks, and which kept regularly shorn by the scythe, would contribute no inconsiderable amount of hay to help in defraying expenses. The cost of such establishments would be effected for a few thousand pounds. There would be elegant and healthful carriage drives through these grounds of six or seven miles in extent—numerous small *reservoirs* and running *streams* so arranged, as to economize the labour of *irrigation*, or watering. Great regard should be paid to the preservation of all fine trees, and rearing of others—the whole to be enclosed by a substantial fence, and quite secure against the possibility of any destruction from inroads of stock, cattle, &c.; six or eight gates of ingress and egress, and porters' lodges at each, and the entire work to be so laid out with regard to beautiful arrangement on the one hand, and economy on the other, as to perfect a work of importance and value to the public, and profit to the company. There is scarcely an inhabitant who would not subscribe to such an undertaking.

The cemetery will be conveniently near to the city, and when ready to be opened for admission, the public may then select the spots most suitable for their family burying places, according to their own wishes; all or a

great number of lots having been previously marked out and numbered, to prevent any confusion or mistake. A fixed price not exceeding £5 to £6 per lot to be hereafter decided on. From this continued sale a considerable annual revenue might be derived beyond some small annual tax to keep up the establishment.

I have calculated that about twenty to thirty able intelligent men would be sufficient, when once in order, to keep it up. These men should be comfortably lodged, and I anticipate obtaining houses already on the contemplated grounds sufficient for this purpose. These men should be encouraged to have their families with them, and in short have every reasonable inducement offered which would secure and perpetuate their services. Their occupation would be healthful, their habits moral, their home comfortable, and their remuneration sufficient to prevent any desire on their part to leave it.

The wives of such men might be good *washerwomen*, and in that way their services could be beneficially employed for the public good, for nothing seems more desirable and necessary than a *Washing Establishment*,—which would form another item for the Company's consideration, of considerable importance. An enormous sum is now paid annually for that item, with incessant complaints of bad work and destruction of property ; in short there are no public conveniences for this very important and necessary work, and there cannot be surprise, therefore, that it is bad.

There are other works which the Company could profitably undertake, and amongst them may be named a general improvement and cleansing of *Spanish-Town*, clearing away of the waste and unoccupied lots of ground, and putting all into a wholesome and profitable cultivation—establishing a public ^{Cemetery} Company, like that first described

though on a smaller scale ; the present water-works could be (as already stated) supplied with water, at a cheaper rate than they now are—and the adjacent pens and properties being abundantly supplied with it for their stock, they could at all times supply the markets. The improvements in the *Square of Spanish-Town*, owing as we are told, to the industry and taste of the chief magistrate, shew what water can do, and if a small supply can so ornament such an arid impoverished spot, what will not an inundating supply be capable of effecting on the rich lands in its neighbourhood. The lands of every proprietor in and about Spanish-Town, as well as around Kingston, and in short *every spot of ground within the influence of water*, will have given to it an increase in value almost incalculable.

CHAPTER VII.

WHEN the benefits from irrigation are once felt, it will be carried out to an extent I should now fear to hazard a prediction of: *millions of tons* of the finest *fresh water* now run waste into the sea—whilst we are suffering ruin from drought. Rain water also might be collected on the surface, but I do not apprehend a necessity for it, as the rivers properly economized would abundantly suffice—they almost all have their sources in *wet districts*, and if dams and reservoirs be hereafter adopted, rains in these wet districts will abundantly fill them. Water may even in innumerable parts, if required, be raised from the sea-coast where by percolation it discharges itself and is lost.

With a knowledge of its use and value will grow up a knowledge of *manures* and all descriptions of fertilizing matter, which will be husbanded with all the care of the *Chinese*:—with *water* at command, *heat* and *moisture* convert almost all substances into *nutriment for plants*. *Water aids agricultural processes* in all stages:—in dry weather it softens the ground to an extent to give the least amount of resistance to the *plough*:—the *harrow* does effectually the important work of pulverization, and torments to death every unfortunate *weed*, of which this instrument is the terror. *Stiff soils* must be rendered more tractable—in a word, no weed, nor its *seed* should be left in the earth, and the after process and labour of *cleaning* will be greatly dispensed with. The *Sugar Cane*, *best suited to our soil and climate*, is the noblest plant we grow. Its produce once a luxury, is now positive *concentrated food for man*; and if its growth is worthy our labours, it is worthy of being cultivated to the “*ne plus ultra*” of perfection.

The work of irrigation for the future will be that of skill and science—it must be efficiently under command ; it is simple, however, and requiring care and attention, it must not be permitted to run wild as a river :—a good eye and a knowledge and practice in levelling, and study of the slopes and inclinations (ever so gentle) of the ground will enable more or less of water to be profitably applied at one time—in short, where the ground is once judiciously laid out, irrigation is more a work of mind than body ; and I am of opinion that one respectable clever young man (as a book-keeper on an estate) will do more effectual service, (and find it amusement) than a dozen ignorant labourers, who with a knowledge of it would often cover their neglect of duty by a plea of ignorance. Irrigation must be perfect, and indeed in our present scarcity of population, so must all our agricultural works, in order to *force from the earth of least surface, the greatest possible amount of production.* Many years ago during the residence in Jamaica of my friend the Hon. William Shand, a man of considerable influence and property, we contemplated and devised a plan for the general irrigation of the extensive adjacent lands of the Rio Cobre, and but for unavoidable events, it would have been accomplished. I afterwards on a small scale, but at my own personal expense, experimented on irrigation, and proved in every instance its wonderful effects. These circumstances I think it useful to state, first, to shew how long this subject has been favourably viewed by me, and secondly, to shew that I am perfectly convinced of its immense benefits, wherever, properly and with ordinary care, applied.

I may also add that in 1836 in connexion with Railway subjects, I drew a topographical and physical map of the country extending from Kingston westward to Spanish-Town, &c. shewing the facilities and advantages for a rail-road :—it was extensively circulated in London, there

discussed, and although for some years in abeyance, it was finally in a most substantial manner carried out, by the spirited and enterprising gentlemen who now direct its operations; and the line which I at ^{that} this instance laid out for it, varies but little from that which I had suggested 10 years previously. In England, also, nearly 15 years ago, (viz: in Nov. 1831) aided by two esteemed friends, one of whom is now in Jamaica, I drew up a plan for Atlantic Steam Communication between England, the West Indies and America. I was then on ship-board, weather bound at Portsmouth, where I printed and distributed amongst my friends numerous copies of it. I also took the liberty to forward copies to the heads of departments throughout Great Britain, the West India Colonies, and America. This plan by the Royal Mail Steam Ships is now efficiently carried out, and although I cannot suppose that mine had any part in these accomplished, it is nevertheless to me a source of considerable gratification to find that in both instances my ideas were so correctly formed, and my predictions verified. I therefore trust I have some reason to hope for an equally successful issue in the present plans which I am submitting to the public. I have hesitated to advert to these circumstances which are not known, but in venturing further my ideas and plans for public consideration, I conceive I am bound to state these facts, for although every individual may have a right to offer his opinions as he thinks fit, still I do not agree that such opinions should be obtruded on the public without all possible pains being taken to carry conviction to the mind, of their use and practicability: with these prefatory remarks, I take leave to state that I do not entertain the shadow of a doubt of the success of those which are the subject of this pamphlet, but that they will all ere long be carried out with incalculable advantages to the public, and profit to the Company, or Com-

panies undertaking them in this Island, or West India Colonies generally. No doubt need be entertained because of the *magnitude* of these plans—a *part* or the *whole* may be commenced with, according to the means or views of the company; but any plan to be *effectual* must be *comprehensive*.

CHAPTER VIII.

ALL the subjects which I have noticed in this pamphlet appear unavoidably, as it were, to arise out of the all important one of irrigation—that it is the main spring, and it would seem that they should all go hand in hand, and that they can easily and harmoniously do so; that some may be omitted without affecting the others; but all combined will give the greatest amount of success to each. It requires no extraordinary capacity of mind to embrace them all; and if any merit be attached to the plans embraced in this pamphlet, and I trust some may, it will be simply that I have spent the leisure moments I could devote, and trespassed occasionally on the usual quantum of night's rest, to put this subject in a shape to be intelligible to the reader; and that, to one unused to public writing, and making no pretensions to it, is not always so easy as persons usually imagine: that the “will for the deed”, however, will be taken, I know all honest-hearted West Indians will permit me to presume; and all others I am sure will look to the subject, and be indulgent to the author. To say I have no motive in writing this pamphlet would be to say what is not the case: I, like many others at this moment, stand or fall by Jamaica and the West India Colonies, and if the suggestions I have offered can be turned to public utility, I, amongst many, cannot fail to participate in the general benefits. *The West India Colonies cannot, will not, be neglected by the parent Government*—and if they are to be retained they will be (one way or another) protected and assisted, and turned to a profitable account, not treated as useless, abandoned rocks. These Islands and Guiana possess some of the finest soil in the world: give us but

labour, or permit us to seek for, and aid us in obtaining it, and with it and capital, I fear not that the West Indies will recover, and again hold that proud position, which they did *in days gone by*, but still so well *remembered* !

In short, I cannot better conclude this subject than by using the language of the acting committee of the West India Planters and Merchants in their report at their half yearly meeting held in London, 11th March 1846 wherein after enumerating the difficulties of the West, India Colonies, and suggesting remedies, they say—

“The products of all corn-growing countries are, without exception, to be *freely admitted* into the distilleries and breweries ; but the sugar and the molasses of the British Colonies are still to be *rigidly excluded*, not only to their disadvantage, but to the great prejudice of the consumer. Thus fettered, they are required to encounter new competition, and to rest under the *imputation* of being the objects of *peculiar and unmerited favour*,

The Committee seek no privilege for the Colonies for which they do not render a full equivalent advantage, They believe that, with unlimited *freedom of intercourse* for the purpose of *procuring free labour* wherever it may be found—with reasonable time to reap the fruits of this accession—with the abrogation of the imperial duties which restrict their supplies from other countries—with the admission of Rum at the same rates of duty which may be chargeable upon spirits distilled in the United Kingdom from foreign grain—and with the free use of their products, in any manner which the people of this country may find desirable,—the West India Colonies would spring into new life, and rank again among the most *valuable possessions of the British Crown*.”

What can be more true than this concluding remark ? what more reasonable than the preceding suggestions ?—

and what more worthy of fair protection than these *ancient, loyal, and valuable Colonies*, so often alluded to, nay, *visited in person by our late King* : and so solicitously watched over by *Her Majesty*, our most Gracious *Queen Victoria*, the "*Patroness of the Royal Agricultural Society of Jamaica*." who charging our Governor Lord Elgin, to convey to us this gladdening intelligence, and mark of *Her Royal* condescension, gave fresh impulse to our actions, and spread joy throughout the land !—and thus it is by *Her* care, and solicitude, for *all* her subjects, that *Her Majesty* ever reigns in the hearts of her *People*.

APPENDIX.

THE following tables, notes and extracts, bearing as they do on the subjects of this pamphlet, have been considered interesting, useful and illustrative, and, as such, are respectfully submitted to the careful examination of the reader.

MODE OF RAISING AND APPLYING THE WATER FOR IRRIGATION.

THE astonishing results of irrigation it is almost unnecessary to impress on the mind of the intelligent reader. In many parts of the world it is wholly relied on, as has been already said, for *certainty of crops*. In India, China, and many of the Islands of the Indian Archipelago, and in Egypt. &c. it is in extensive use ; and in Mexico so near to us, it has been used on a great scale, and coming still nearer home, we have yet in St. Domingo evidence of its former works in that once magnificent Colony.

The simplicity of the operations of irrigation, as well as the certainty of its results, will enable capitalists to embark in it with safety, and form companies on any scale suitable to their means or wishes : and their plans may be all so laid that any future increase of them will not injure, but merely add to the works of the first ; for instance, the waters of a great river like the Rio Cobre are capable of irrigating a vast extent of country much larger, we will suppose, than the company would, in all probability, at first be disposed to undertake. Let them raise then from the river by machinery, steam engine, wind-mills, or simply by a dam, &c. only that amount of water which they have present use for, and deliver it into a canal, conduit or gutter, just large enough to contain it ; but at the same time so constructed as to be susceptible of enlargement when required, without waste of the original works. Thus the works might be continually increasing until (as no doubt

would be the case) every drop of the river should have been taken up for irrigation, and the numberless other indispensable uses of its adjacent districts.

Of the vast body of water contained in the Rio Cobre any one might satisfy himself, who had in the height of the late drought of this year (1846,) examined and measured its great volume, and contrasted it with that of Hope River, with which we are all familiar, when the former was found to be in width nearly as many chains as the latter was feet, and in all other respects, depth, velocity, &c. about equal.

To bring these important objects into use may be done by a company or companies. They may buy up portions or whole districts of country ; or present proprietors may join the company with the whole or a part of their properties as common stock, and hold shares according to its ascertained value ; or the company might confine themselves chiefly to the supplying of water alone to all or such parts of the districts as would find it to their advantage to buy it for irrigation or for stock, &c. &c. The details will hereafter be readily suggested, and I trust I shall for the present have done enough, if I have shewn the practicability of developing this important and beneficial project.

In revolving this subject well in my mind, I have not been able to discover a single interest that it will injure, but on the contrary it seems to offer itself as a common benefit to all proprietors and inhabitants generally within its influence.

Of the endless advantages arising from the use of water, it is almost impossible to anticipate the amount—but it may be worthy of remark, that water-power also for machinery of all kinds as well as for irrigation, may by the plans proposed, be almost everywhere commanded ;

and every one knows best his own use to apply it to. In treating of the districts to be irrigated, that of Liguanea north of Kingston, I have represented as scantily supplied with water. I may add, however, that should the end warrant the means, an increased supply can be thrown on that plain, by enlarging the conduits and power, first proposed; and then having concentrated in a tank or reservoir in any convenient part of Liguanea, any given body of water, it may again from this point and by similar means of raising power be thrown to any other required height, and so on to any extent of which the supply of water would admit.

IRRIGATION

RECOMMENDED IN JAMAICA,

BY THE LATE GOVERNOR,

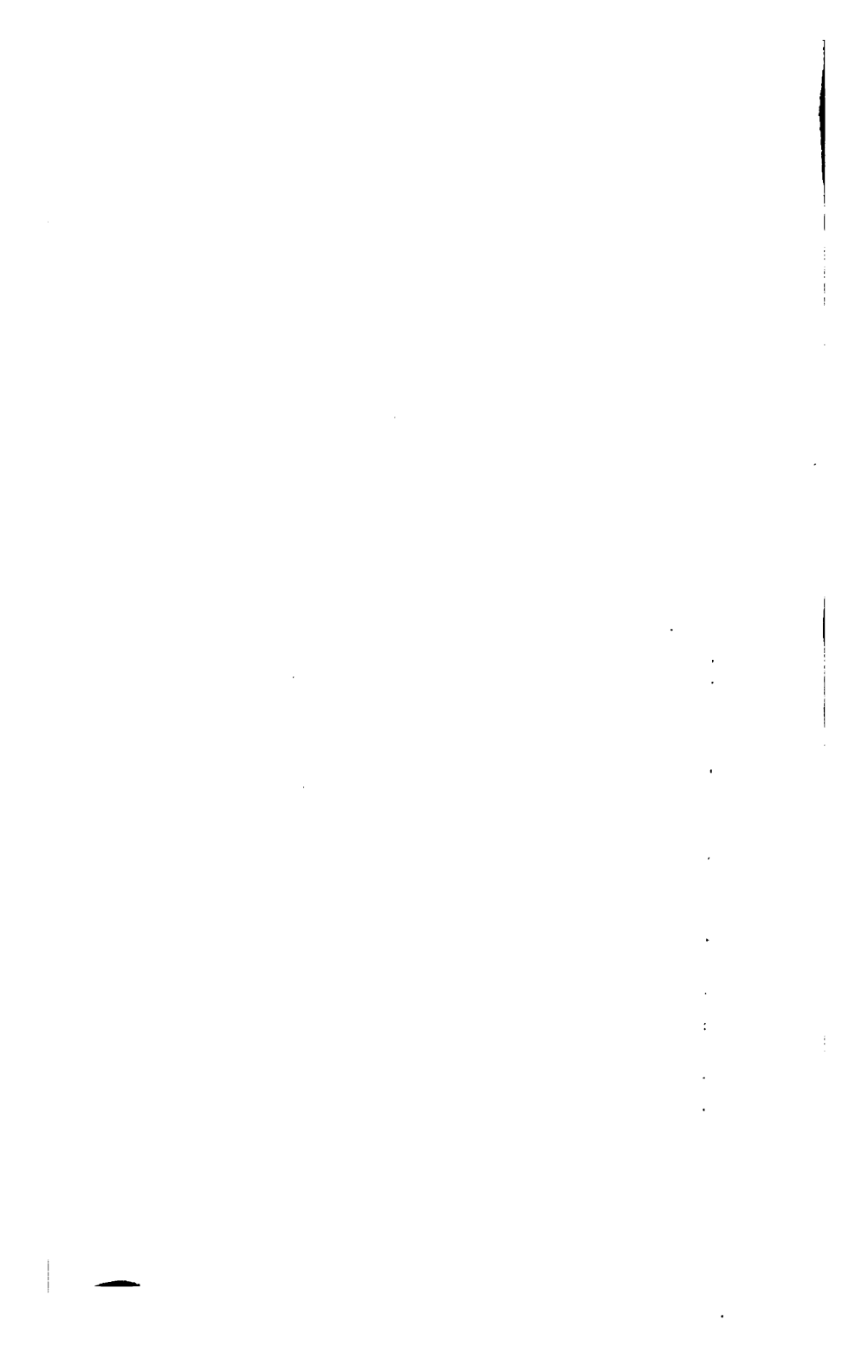
The EARL of ELGIN,

In his Despatch to the Right Honorable W. E. GLADSTONE,

6th MAY, 1846.

*In His Excellency's lengthy and valuable Despatch, his
remarks on Irrigation hold a prominent place,
they are as follow :*

MANY Planters of experience have been led to infer, from the frequent recurrence of dry seasons, that the climate of the colony has undergone a change. Some of the most productive Sugar Districts are peculiarly liable to this casualty. It is computed, that in the parish of Vere, one crop out of three is destroyed by drought. Under these circumstances it were well that persons interested should consider, whether the ruinous effects of these visitations might be arrested by the adoption of extensive measures of irrigation, conducted with prudence and on scientific principles. The value of the Sugar crop raised in a congenial soil is so great, that to secure it from periodical destruction, a considerable outlay of capital might, it may be presumed, be incurred with much propriety and advantage. It is well known that the cane is cultivated with success in countries where no rain falls, as in Peru ; and I have been informed, that artificial Irrigation has been resorted to with good effect in some of the most fertile districts of Porto Rico.



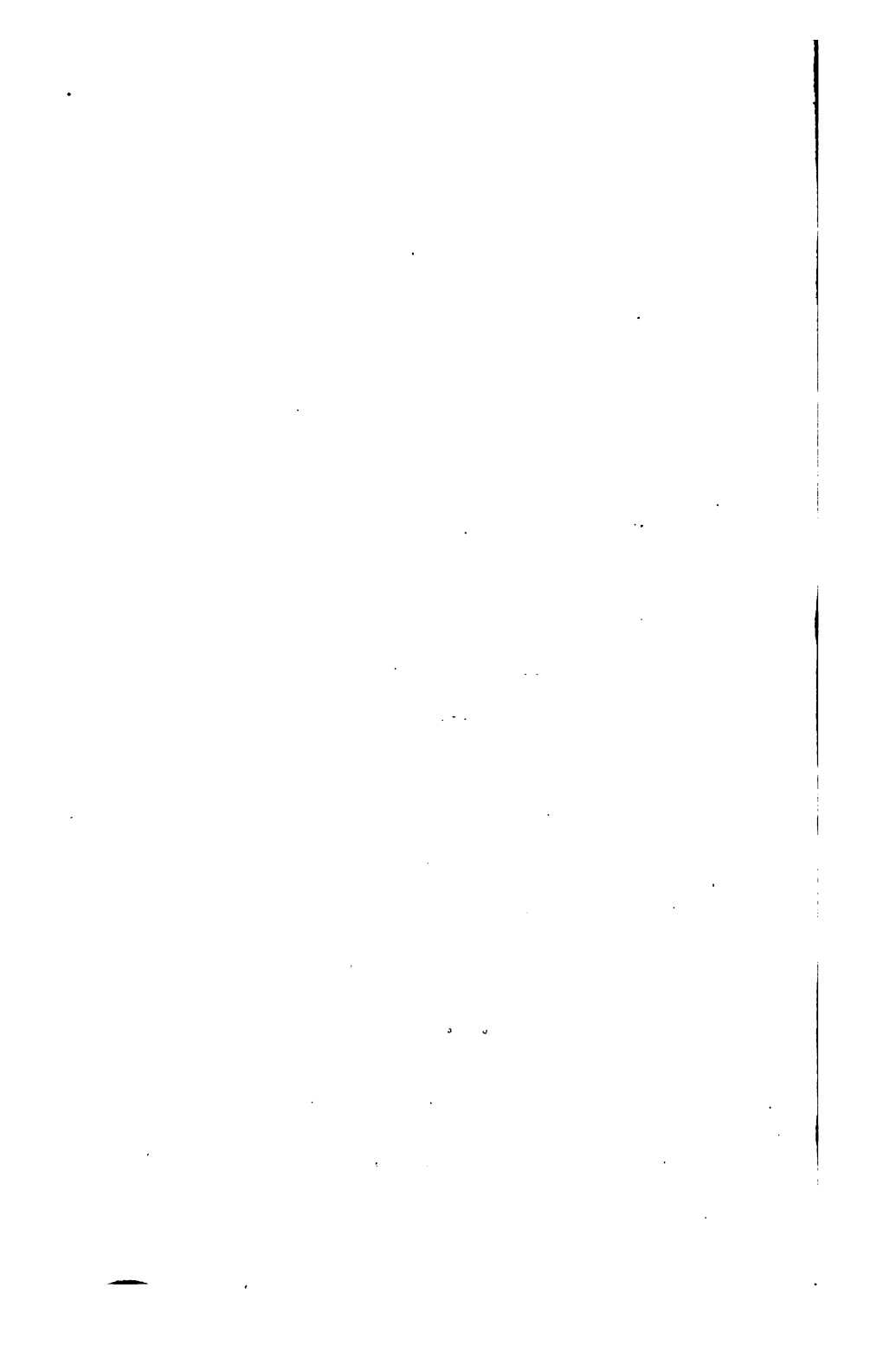
SUGAR

PRODUCED IN THE WHOLE WORLD :

1845 and 1846, and 1846 and 1847—estimated.

	1845 & 46. TONS.	1846 & 47. ESTIMATED AT TONS.
WEST INDIES—British.....	142,000	122,000
“ Dutch & Danish..	25,000	20,000
“ Cuba & Pto. Rico.	115,000	190,000
“ French Colonies..	102,000	85,000
LOUISIANA.....	92,000	90,000
BRAZILS.....	93,000	75,000
MAURITIUS.....	36,000	40,000*
JAVA.....	90,000	105,000
SIAM, MANILA & CHINA.....	20,000	25,000
EAST INDIES.....	67,000	73,000
	782,000	825,000
EUROPE—Beetroot.....	70,000	80,000
TOTAL IN THE WORLD.....	852,000	905,000

* It is stated in a recent report, that the 1847 crop of the Mauritius will nearly reach 60,000 tons.



C O F F E E.

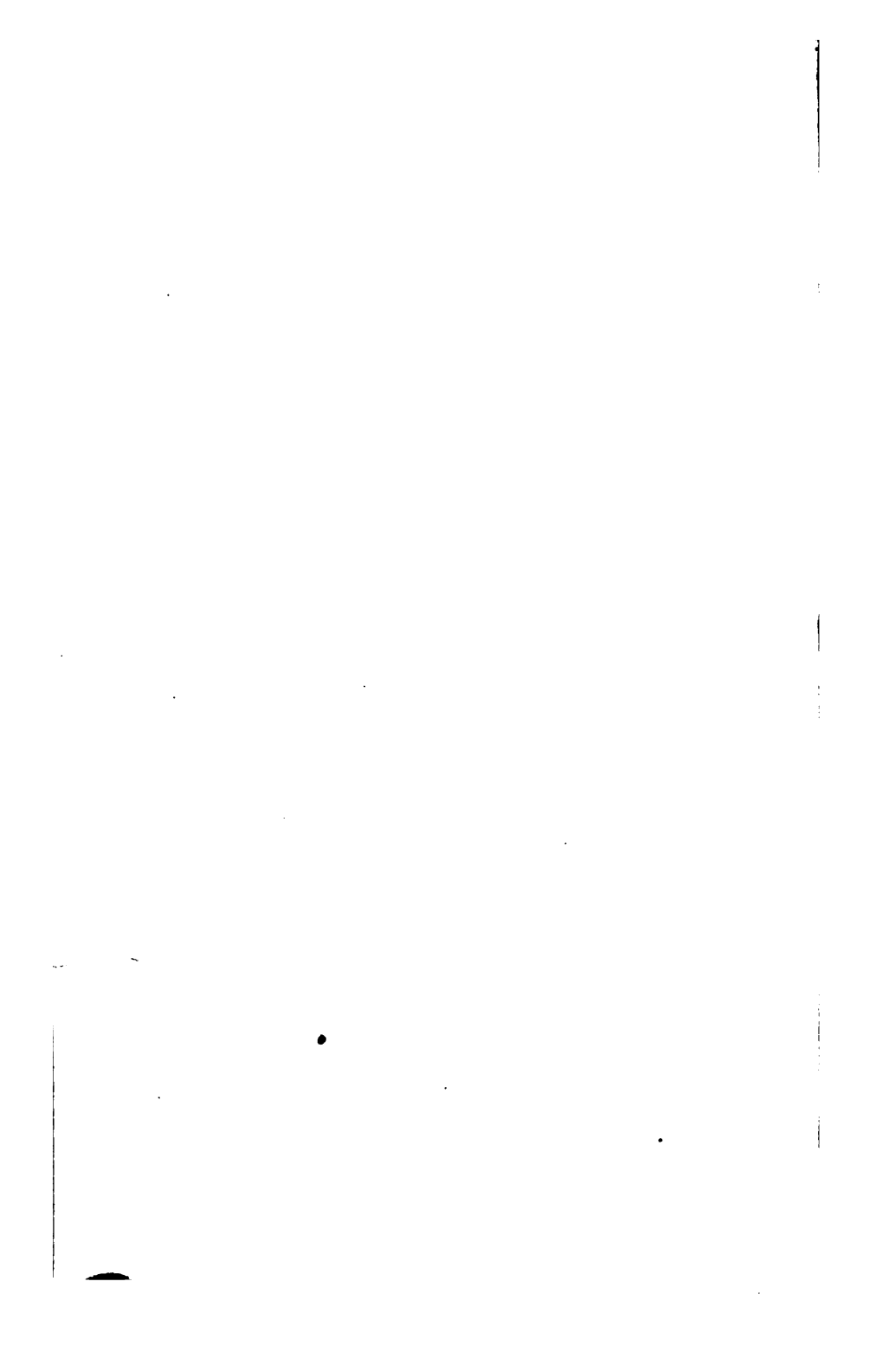
1830.

EXPORTED FROM, IN 1830.	TONS.	CONSUMED IN	TONS.
British West India Colonies.....	11,000	Great Britain.....	10,500
Dutch ditto ditto.	5,000	Netherlands and Holland.....	40,500
French ditto ditto	8,000	Germany, & Coun- tries around the	
Cuba and Porto Rico.....	25,000	Baltic.....	32,000
St. Domingo....	20,000	Spain, France, Italy, Turkey— (Europe.) The	
Brazils & Spanish Main.....	42,000	Levant, &c. &c.	35,000
Sumatra, & other parts of India...	8,000	America.....	20,500
Java.....	18,000		
Mocho, Hodeida, & other Arabian Ports.....	10,000		
	147,000		138,500

In 1830—Coast of Malabar exported.... 4,000,000lbs.

“ Ceylon exported..... 1,669,490lbs.

In 1832—Total imported into Great
Britain from the East Indies. 10,407,897lbs.



GREAT METROPOLITAN SEWAGE DRAIN.

The following notice of this Great Work is from a London Paper.

VARIOUS plans have been proposed from time to time for rendering available the manure contained in the sewage water of the metropolis, and for relieving the banks of the Thames of the pestiferous accumulations which have for ages rendered them a nuisance and a source of disease to the adjacent houses ; but in most cases they failed from an undue complication in their arrangements, in others from a deficiency of capital, and in all from a want of countenance on the part of the legislature and the city authorities. At length, however, a plan has been devised, which, it is understood, will be supported by the good opinion of the government and the sanction of the corporation. By the favour of the town clerk we are enabled to present our readers with the accompanying map of the arrangements contemplated by the mighty scheme ; and by the further assistance of Mr. Thomas Wicksteed, the engineer, we have the pleasure of adding the following explanatory particulars of the objects sought to be accomplished by the project, and of the means by which it is proposed to attain them.

CONSIDERATIONS ON WHICH THE SCHEME IS FOUNDED.

The whole area of England is equal to 50,387 square miles, or 32,247,680 statute acres, divided as follows :—

Arable land.....	13,252,000
Pasture.....	12,380,000
Uncultivated	6,615,680
Total	32,247,680

Supposing that half of the *uncultivated* ground, as above stated, could be brought into a state of cultivation, if the cost of manuring it were sufficiently reduced, then the area of land in England that may be assumed to be available for the application of the new manure, will be as follows:—

Arable land.....	6,626,000
Pasture.....	6,190,000
Uncultivated	8,807,840
Total	<hr/> 16,123,840

The supply of sewage water north and south of the Thames is at present equal to 265,142 tons per diem, or 96,776,880 tons per annum.

Supposing the *whole* of the fertilising matter, both *mechanical and chemical*, to be abstracted from this quantity, it will, according to analysis, be equal to 1 in 236, which will give 410,000 tons of solid manure per annum; and its value, it is presumed, will be equal to that of guano, sold in the market at 6*l.* per ton, although its constituents may be somewhat different. If the quantity of manure required to keep a farm in “good heart” be taken as equal to 4 cwt. of guano per acre, and for the arable land a five years’ rotation be supposed, then 4 cwt. per acre in five years will be equal to 4 cwt. per annum for 5 acres of arable land; and supposing that the *pasture* and *uncultivated* grounds will bear 3 cwt. every year, it will require 1,689,716 tons of the solid manure to supply the 16 millions of acres before referred to: assuming that the remaining 16 millions of acres are already provided for by the use of other manures, this may be considered the amount of *new* manure required for the *whole area of England*; and as the quantity supplied from the London sewers is calculated to be equal to 410,000 tons, or one fourth of the whole quantity required for England, the area of land to produce a market will be equal to one fourth of the area of England, or 8 millions of acres.

VALUE OF SEWER WATER.

(From the "Liverpool Health of Towns Advocate")

If we take the population of Liverpool at 300,000, their annual produce of sewer water would, according to Mr. Smith's (of Deanston) data, be 7,140,485,676 gallons; and if use could be found for all of it, at the yearly rate of 17,920 gallons per acre, it would fertilise 398,460 acres. So that, allowing about one half of the saving to go to the farmer, there would still, on Mr. Smith's data, be a revenue of above 270,000*l.* a-year to the town. And be it remembered, that this estimate rests on the assumption of the present sewer water being used, without taking into account the improved drainage, by which the whole soil of the town (that to a very great extent is now otherwise disposed of) will be suspended in the water of the sewers, and increase vastly its value as a fertilising agent.

By an experiment made lately in Lancashire, it was proved that eight tons of sewer water were superior in efficacy to fifteen of farm yard manure, or three cwt. of guano.

We need hardly say, if even a small part of this be true, the authorities of Liverpool may have at their command, whenever they choose, a fund amply sufficient to defray every necessary expence in improving the sanitary condition of the town. The Rev. Mr. Clay, in his report on Preston, has given a calculation, in which he shows, that to place that town in as perfect a sanitary condition as external means well could, a sum of money would be required, the annual interest of which, to be raised by a rate, would be 895*l.* 9*s.* 8*d.* For this sum the whole

town would be cleansed, every room in it ventilated, every house would have a water-closet and drain; the needful main and secondary sewers would be laid down, and half of the town supplied with water. To meet this expenditure, he estimates the annual value of sewer manure at 25,000*l.*, and the whole annual saving from improved sanitary condition, a lower rate of insurance, &c., at 22,815*l.* more. In other words, the whole weekly expenditure per head of the population, for every improvement, would be about three farthings, while the whole weekly saving per head would be 4½*d.* This may be thought somewhat extravagant by those who have not paid attention to the subject; but let us see what the Towns' Improvement Company actually offers to do, and what it is about to do for Leicester, and not improbably for Manchester also. The proposal for Manchester is—to lay on pipes to every cottage, with a constant available supply of water to the extent of 100 gallons per diem to each house, for a penny a week for houses under 5*l.* rent. To provide every cottage of the same class with a sink, washhand basin, and self-acting water-closet for another penny a week; and for an additional half penny a-week, to keep the foot pavement and roadway clean by the sweeping machine and washing with the jet. And, lastly, “to effect street sewerage and pavement on terms of contract, and to seek its profit from an undeveloped source of revenue—the application of the refuse of the town for the purposes of agriculture.” The company expects an income of twelve per cent. on the outlay from these sources, but offers to pay over one half of all dividends beyond eight per cent to the town council, as an improvement fund. The Towns' Improvement Company has in connection with it many individuals who are the most competent to form a judgment on the subject, and their proposals show the commercial value attached to

sewer water as a source of revenue. Captain Vetch, R. E., one of their engineers, says in his evidence —

“ If the three objects of supplying water to the town, extinguishing fires, and of sewerage and draining were skilfully combined into one system, and if each town secured the benefits of such a combination to the inhabitants at large, their comforts and conveniences might be met either very cheaply, or even be entirely defrayed by a proper application of the manure.”

The objection to the use of sewer water for agriculture on the ground of malaria, is very simply answered by the fact stated by competent parties—that while a top dressing of stable dung gives off gases for six days, a dressing with sewer water ceases to do so in one day.

USES OF LIQUID MANURE.

(From the Agricultural Advocate, and republished in the Jamaica Despatch—1846.)

A few days since, Mr. Moore, the secretary to the Metropolitan Sewerage Manure Company, in compliance with the request of several influential agriculturalists, delivered a lecture on the application and advantages of liquid manure, to a meeting of agriculturalists, and the institution, at Staines. The lecturer stated that the capabilities of the agricultural interest were not at present more than half developed in accordance with the present state of science : that in consequence of the deficiency of scientific knowledge, and inattention on the part of the practical agriculturalists of the kingdom, fully one-half of the raw material available for the manufacture of food was lost, and that the annual present money value of that loss is equal to the annual profit on the foreign commercial and manufacturing trade of the kingdom. As a practical farmer, who had during the last twenty-five years brought to bear on agriculture the science of the day, he was compelled to admit that during twenty years of that period he had been sustaining that proportion of loss on the farm which he cultivated, and it was only by accident that he was convinced of his error. The loss referred to sustained by the general neglect of the liquid manure made on the farm, and also by allowing the solid manure to ferment and decompose to so great an extent before it is used, that the principal part of the most valuable portion of it (being volatile) has been dissipated. The soil also, by improved cultivation, is capable of bearing a considerable increase of crop. He was glad to be able to admit

that many of the farms in this neighbourhood were in a high state of cultivation, in proportion to the depth to which they were cultivated ; but he was convinced that that if land was improved to the depth of twelve or sixteen inches instead of six or eight inches, such land would not only be less susceptible of the vicissitudes of the weather, but would yield crops approaching to double in amount ; the roots of the plants could obtain food at a greater depth instead of being forced to contend with each other for food near the surface in a limited sphere. But the first step in this improvement is, that admirable system of thorough draining and sub-soil ploughing introduced by Mr. Smith, of Deanston, and which is absolutely necessary, for all soils are so adhesive as not to absorb all the rain water as it falls upon them. Some years back Sir James Graham published an account of an experiment made by him on this principle. He let a field of very inferior land to a tenant of five shillings per acre, who complained that it was not worth the rent, as scarcely any animal would eat the grass that grew upon it, which induced the landlord to take it into his own hands, and try the effect of Mr. Smith's method of improvement. It was accordingly thoroughly drained, and sub-soil ploughed and manured for green crop, after which it was sown with a corn crop and grass seed ;—after the crop of corn was removed, it being then under clover, it was valued and let to a tenant on a twenty-one years' lease, at a guinea per acre. If his memory was correct, it was stated that the proceeds of the green crop covered the whole of the expense incurred in the improvement. After the land had been treated as recommended by Mr. Smith, it was necessary to give it an increased quantity of manure. It might be asked, whence is the additional quantity of manure to be obtained ? In reply, he not only suggested the necessity of saving the liquid manure made upon the

farm, but also solicited the attention of the farmers of the neighbourhood to a source of supply ample to the utmost extent of their wants. A company has been formed for the purpose of transmitting the sewage manure of the metropolis into the country to the extent of twenty five miles, by the means of steam power and pipes, which will enable the company to distribute it in the fields for the farmers at so low a price as it would cost them to cart it from their farm yards, and distribute it in the fields. It is intended to lay the main pipe along the main road, through Hammersmith, Brentford, and Hounslow, and branch mains on to Chertsey, Staines, and Colindale, from which service-pipes will be laid at about half-mile distances into the lands where the manure will be required ; taps will be in the service-pipes at certain distances, to any of which a house pipe can be attached by the company's men for the purpose of distributing the liquid manure in the respective fields as may be required. The facility and economy of this mode of transmission and distribution enable the company to supply it on such low terms. Some persons have imagined that it is the solid part of this manure that is the most valuable, but this idea is inconsistent with correct principle and practical results. A reference to a very simple fact, with which we are all conversant, will sufficiently illustrate this principle. We all know the great proficiency of the ladies in the making of tea ; how do they proceed ? They pour water upon the solid vegetable that they put into the tea-pot ; in the course of a few minutes they pour out the exhilarating beverage as clear (but coloured) as the purest water. When they are satisfied in having thus exhausted all the virtue of the tea, what becomes of the solid matter ? We all know that it is thrown away as useless.— Similar treatment is adopted with the liquid manure of Edinburgh : small cess-pools are made along the main

course, in which the solid matter is allowed to fall as deposit before the liquid is put over the land, and this solid deposit, when occasionally cleared out, is disposed of as of very little value. One of the very great advantages in the application of liquid manure is, that it is just in the very state ready to be taken up as food by the vegetable kingdom, as it is well known that no vegetable can take up solid manure before it is dissolved. The lecturer then referred to several other advantages attendant upon the application of manure in a liquid state. *Agricultural Advocate.*

REPORT OF THE COMMITTEE OF THE VERE AGRICULTURAL SOCIETY.

WE, the members of the Committee, appointed to award the three prizes for the largest quantity of produce, made on any Estate in the parish in 1845, at the least proportionate expence for labour in cultivating the Estate and manufacturing the produce, agree, after a minute enquiry that the prizes be awarded as follows:—

1ST PRIZE—A Silver Cup, value 20 Guineas—To New Yarmouth Estate, the property of Lord Dudley.

2ND PRIZE—Of £15 to Caswell Hill Estate, the property of Mrs. Osborne.

3RD PRIZE—Of £10, to Amity Hall Estate, the property of the Hon. Henry Goulbourne.

That in the opinion of the committee, great credit is due to Mr. Alexander G. Kerr, manager of Caswell Hill Estate, who, in spite of all the difficulties with which he had to contend, was only two shillings higher per hhd. than New Yarmouth. The crop on this Estate was not completed until the end of September, in consequence of *the want of water*, and breakage of machinery. The committee regret exceedingly there were only three competitors which obliged them to award the 3rd prize to Amity Hall, the expences of which estate were considerably higher than the other two estates.

NEW YARMOUTH MADE

168 Hogsheads, 62 Puncheons, for £1,038 18 7½

CASWELL HILL.

202 Hogsheads, 105 Puncheons, for £1,418 4 7½

AMITY HALL

131 Hogsheads, 35 Puncheons, for £1,317 17 9

(Signed)

JOHN HUMBER
HENRY CREW
WM. JARMAN
JOHN BROWNE.

THE IRON SLAVE.

Among the numerous labour-saving machines, one under this denomination has been invented in England, and recently noticed by the Jamaica Times. If it has succeeded it is no doubt a valuable machine.

“ We have already on more than one occasion, directed public attention to this wonderful machine, constructed on a new mechanical, labour-saving principle ; but the invention has not yet received that examination in Jamaica, of which we think it might be found eminently worthy, and therefore we have no hesitation in again bringing it before our readers. It is represented as intended as a substitute for the work formerly done by the human slave in warm climates,—and has been made for the tropical emigration society of England. If the account given of it may be depended upon, as we trust it may, we should hold ourselves guilty of a culpable omission, were we not to endeavour to fix upon it the early attention of our planting friends.

The first public display of this invention which, it is seriously alleged will at no distant period, altogether change the present system of Agricultural labour, especially in warm climates, excited a good deal of interest. The machine is intended for Agricultural purposes, such as ploughing, sowing, reaping ; also for making canals, roads, and tunnels. It is a frame of iron, four feet wide, and twenty feet long in front, with a shaft of six feet six inches long behind, with two broad wheels and steering wheel on the extreme end. On the front shaft are feet similar to spokes of wheels, with buffers on their extremities ; these enter the ground by the revolving of the shaft. This is

caused by a long lever of twenty feet, swinging backwards and forwards on a spindle, and pulling alternately two levers of three feet, in a box on two wheels, fixed to the shaft, similar to the capstan on the Great Britain steamship—with the difference that the motion can be reversed, or the levers so placed that they vibrate without the driving wheel. The power to work this machine is communicated by ropes, pulling alternately on the lever: these ropes at a distance of a hundred yards, were wound around a double drum, and corresponding ropes ran from the drum to the distance of a further 120 yards, to two cranks of a steam engine. By this trial, a new mechanic principle was established—namely, the transition of power from a fixed point to a moving point, going in arbitrary directions at the will of one man at the steering wheel, which was thought impossible by scientific engineers. By prolonging or shortening the communicating ropes, the distance from the prime mover to the machine travelling on pulleys and rollers to diminish friction, and from the drum to the “satellite,” they are held up by cars with poles, if they extend to a great distance, to keep them from the ground. The trial itself proved fully the practicability of the machine. The machine is intended to work and move at the rate of three miles an hour. The trial was made on a square of eleven acres, on the property of Edward King, Esq., of Blackburn, who kindly lent to the Tropical Emigration Society his steam carriage, which, eleven years ago, was running between Hammersmith and London.—*Jamaica Times*, March 10, 1846.

JAMAICA ROYAL AGRICULTURAL SOCIETY.

The following Report of the Revd. Dr. Stewart, is an interesting and able document, and will doubtless be acceptable to all West India Agriculturists.

REPORT OF THE REV. DR. STEWART.

TO THE COUNCIL OF THE ROYAL AGRICULTURAL SOCIETY OF JAMAICA.

GENTLEMEN,—When in the month of July 1844, I left the Island, I resolved that to advance the interests of the Agricultural Society of Jamaica under all circumstances, and in every place which I might visit should be a main object of desire and exertion.

To this end I put myself in communication with every person to whom I could gain access who was interested in agriculture, and I sought to establish in every place those friendly relations which produce useful interchange of valuable information.

In Cuba, the first place I visited, the peculiar circumstances of the country presented many obstacles to the accomplishment of this object. Nevertheless, I believe I did not wholly fail. I found many persons willing to afford me all the information they possessed; but as the systems of labour and cultivation must differ greatly in a state of slavery from those which prevail in one of freedom, there was little to be learned in these respects which could benefit us.

An official document signed, guaranteed by the Governor of Cuba, published in the English newspapers in Nov. 1844, offering prizes similar in their objects to those proposed by your society, affords evidence that they in this respect followed the example of your society, or some

other similarly constituted. The amount of the prizes offered was so large that it would be strange if they did not elicit competition. What the result has been, however, I am unable to state. There is a society in Cuba, one section of which professes to take charge of the Agricultural department. They have published some bulky volumes of transactions, &c., but as far as I could judge, up to that period they were not of much value.

In my communications with Mr. Bland, your Secretary, I sought to draw the attention of the Council to the superior description of mules to be found in Cuba, and recommended for consideration, the effort to procure sires from thence. This, in addition to the acknowledged superiority of Spanish asses, have the further recommendations of being at a shorter distance than those to be had elsewhere, and are natives of a climate similar to ours. While I am on this subject, I beg to state the result of all my enquiries. You will find among the papers sent by me from England, a statement of the expense incurred by an eminent mercantile house in London, in bringing from Malta to London, and sending thence to Grenada, two Maltese asses. The expense was more than £60 sterling each, and the result a failure, as no offspring followed. I, however, addressed Sir Hector Greig, secretary of the Lord High Commissioner of the Ionian Islands, resident in Malta, asking him whether he thought we could not procure a person on whom we might rely to see the animals we might purchase, shipped uninjured.

His reply was not encouraging, and for an explanation of the causes why these animals are not to be relied on, I refer you to the letter of Wm. O'Reilly, Esq., of Belmont, in the county of Westmeath, Ireland, a copy of which I forwarded to your secretary. Mr. O'Reilly has the best ass I saw any where out of Cuba. It has obtained several prizes.

In the United States of America, I found the greatest willingness to encourage friendly intercourse with our society. This was strongly attested by communications, personal or by letter, which I had with societies or individuals in Baltimore, Philadelphia, New-York, and most especially with a gentleman in the office of Patents at Washington, and with Mr. Henry O'Reilly, secretary of the New-York States Agricultural Society at Albany. Mr. O'Reilly has done much to advance the cause of Agriculture, and has been indefatigable in his researches into the Geology of America. The system of cultivation in America was similar to that generally adopted in new countries and virgin soils. Every thing was trusted to the capabilities of the soil, and they acted for a long time as if its fertility could not be exhausted. Finding, however, that the soil deteriorated, and the crops fell off, they have turned to improved modes of manuring and cultivation. The reports of the States Agricultural society of New-York, copies of which I forwarded to you from America, are both elaborate and intelligent, and prove the great exertions made to improve cultivation, and to diffuse the best description of Agricultural knowledge, by the agency of schools and other means throughout every county in the State. They are highly creditable to the local legislature, which liberally supplies the means to the society which judiciously applies those means, and to the people at large who evince very great anxiety to avail themselves of the advantages of education. The whole furnishes an example well worthy of imitation, not only throughout the American Union, but in other countries, including this Island, where similar means and appliances are so necessary, and similar results so anxiously to be desired.

I used the same exertions as I have already referred to in British America—in the country round Niagara—at

Kingston, Montreal, Quebec, and at Halifax in Nova Scotia, as well as in some other quarters. The societies however in most places have scarcely more than a nominal existence.

In pursuance of the instructions received through your secretary I attended all the great exhibitions of Stock, Agricultural Implements, and Ploughing Matches which occurred during my stay, as well as several county meetings. The first great meeting was that of the Royal Dublin society, held in their extensive premises in Kildare street, Dublin, in three days in April 1845. The show of Stock and Implements was very extensive and very good.

I went to Shrewsbury to the Annual Meeting of the Royal Agricultural Society of England for four days in July—to Ballinasloe,—to that of the Royal Agricultural Improvement Society of Ireland, from 30th Sept. to 3rd Oct., and to that of the Highland society at Dumfries, on the 6th and two following days of October, and I attended the yearly exhibition of the Smithfield Club in London, in December 1845.

The details I have from time to time communicated to your secretary. During the visits I made to these different places, I endeavoured, by as close observation as I am capable of, to ascertain the mode of conducting such exhibitions, of rendering them as efficient as they could be made. I sought to ascertain wherein they differed and wherein they coincided in their management and details. In every one there was much to admire, much to excite the wonder, and to cheer the hearts of all who desire to see all men of every grade, the inhabitant of the palace, and the inmate of the cottage, united in the promotion of the common benefit of all, viz : the discovery, the accomplishment and the exhibition of improvements.

There are also some defects to be observed, which it

should be our care to guard against, which, however will be more advantageously explained in the details of the practical proceedings of your society than by entering into a statement or discussion of them in this report.

I think there is little connected with the arrangement and conducting of such societies and these meetings, which I have not seen; and I sincerely hope the information thus acquired may be, as it is intended to be, of practical benefit to the Jamaica society.

The Council directed that I should turn my attention to the importation of cattle and horses; and convinced of the great importance of the subject, I sought, with much anxiety, to obtain the best information which could be procured. After the fullest enquiry, I am bound to believe that the Hereford is the breed best suited to the country for work, in youth, and for fattening after. There are many reasons to be adduced in support of their superiority over other breeds, even over that which may be considered a greater favorite in European countries,—the short horned Durham, which it would perhaps be out of place to enter upon, in this report. One fact should be kept in mind by the members of the society, and others interested. The Herefords take more than a proportionate number of the prizes given for the best stock of any class, at the exhibitions every where, except, perhaps, in Scotland. The best beast in the yard at the Smithfield show in December last was of that breed.

With reference to agricultural horses, I do not know any breed exactly suited to the country, and yet that it should be found is a matter of paramount importance, and cannot too much engage the attention of your society. It would greatly conduce to the increase of production, and the benefit of the proprietors, if the working of horned cattle on the public roads, were to cease altogether, and

the spirit which now pervades society here, excites good hope of speedy improvement in this as well as other important matters. Your society has been instrumental in bringing these things to their present state, and it is therefore the more strongly bound not to omit any opportunity of pushing them forward to their full accomplishment.

I was enabled to see the best specimens of every breed of agricultural horses in England, Scotland, and Ireland, and I went through a great part of Bas Normandy that I might examine the horses there, which, I was told, were more likely to suit this country than any other. The French horses certainly look most like what is wanted, but the result of all the enquiries I could make, led me to believe they do not hold out under hard or long continued labour.

It has been ascertained that blood and breeding are required, to enable horses to stand the climate, and the treatment they in general receive. These are qualifications which agricultural horses in European countries do not possess, because they are not deemed necessary.

It would seem desirable that your society should endeavor to procure a horse, which, while he had size and bone suited to the work of the country, might also have such a portion of breeding as is plainly necessary. This might be done by special arrangement.

The Council authorised me to send out horses and bulls. I did not send any horses for the reasons stated, and I forbore to send bulls because I was not advised that any adequate preparation had been made for their reception in this country. My instructions embraced Insurance, which would have secured the society from loss up to the time of landing. As great or greater danger was to be apprehended after the animals had been landed, and no sufficient arrangements were made to meet that.

I did not, however, neglect your instructions. During my whole stay in England and Ireland I was in communication with the most eminent breeders ; after a great deal of examination, I believe, taking all matters connected with the subject into consideration, the society would find they could most advantageously negotiate with Mr. William Fisher Hobbs of Mack's Hall, near Coggeshall, in Essex. He is an extensive breeder, and has spared no expense to procure the very best ; he is a member of the Council of the Royal Agricultural Society of England, generally known and highly esteemed by every member of that society, from the President throughout. I was brought to know him through Mr. Hudson, the secretary. He is a large exporter of the best bred stock to all parts of the world, and his contracts are made to deliver every animal on board the ship fixed on to convey it to its destination.

I went down into Essex and saw his stock, and would have sent out three of them, but, as I have already stated, I feared no adequate arrangements had been made to receive them.

The whole matter, however, has been put in such a course that the society can have no difficulty at the other side of the water, and that their wishes would be complied with upon communicating them to the agent in London.

It would be unjust were I to omit saying that the agent, Mr. Pinckard, was indefatigable in his exertions to aid me in every thing I sought to have done.

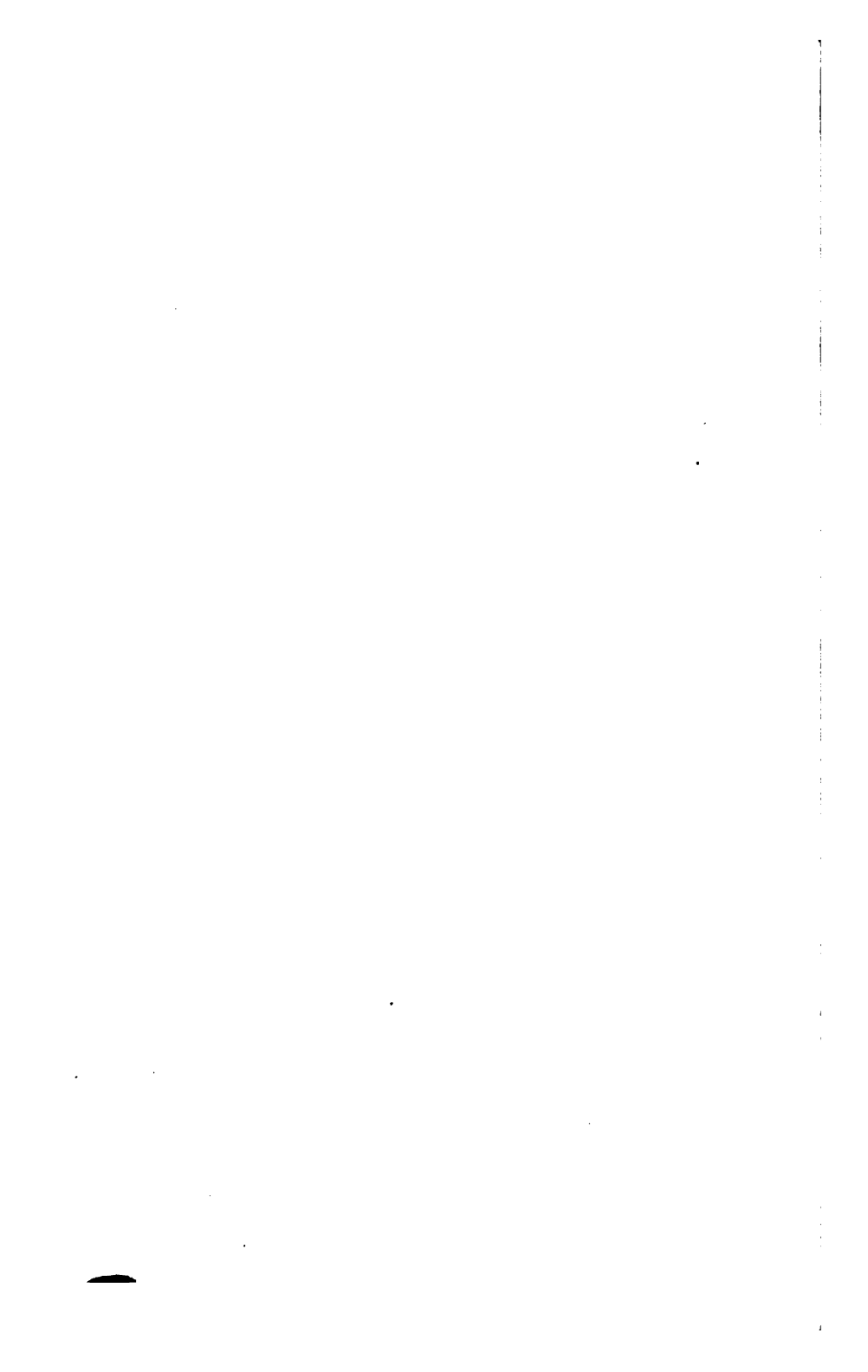
I have already communicated to the secretary the determination of the Royal Mail Steam Company with respect to the importation of stock. The terms proposed are not very encouraging. The transshipment at Grenada seems to be a serious objection, particularly as all responsibility is declined on the part of the company.

In bringing this detail to a close, I would beg permission to express my sincere thankfulness to Mr. Bland, for his exertions on behalf of the society, while the whole burden of conducting the business in this country rested on him. It is unnecessary to enter at large on the subject in addressing the Council, who have yourselves been witnesses of his unwearied exertions. I refer to the subject, because it affords me sincere gratification to be permitted to express before you that feeling of gratitude to him which so strongly occupies my mind.

Should the Council and the Society at large derive useful information or practical advantage from any thing I have been enabled to do during my sojourn off the Island, if one member shall be influenced to an increased observance of the motto of your society "perseverance," then I have had my reward.

SAMUEL H. STEWART.

February 23, 1846.



**COMPARATIVE
EXTENT, POPULATION, &C. OF THE FOLLOWING ISLANDS :**

ISLANDS.	EXTENT IN SQUARE MILES.	POPULATION.	ESTIMATED TONS OF SUGAR IN 1846 & 1847.	POPULATION TO THE SQUARE MILE.
Jamaica...	6250	400,000	60,000	64*
Mauritius.	676	150,000	60,000	221
Barbados.	166	130,000	23,000	783
<i>Malta</i>	<i>98</i>	<i>103,000</i>		<i>1,050</i>
Antigua...	108	33,000		305
Madeira..	300	112,000		373
<i>Java</i>	<i>45,000</i>	<i>6,000,000</i>		<i>131</i>
<i>Cuba</i>	<i>43,380</i>	<i>1,200,000</i>		<i>23</i>

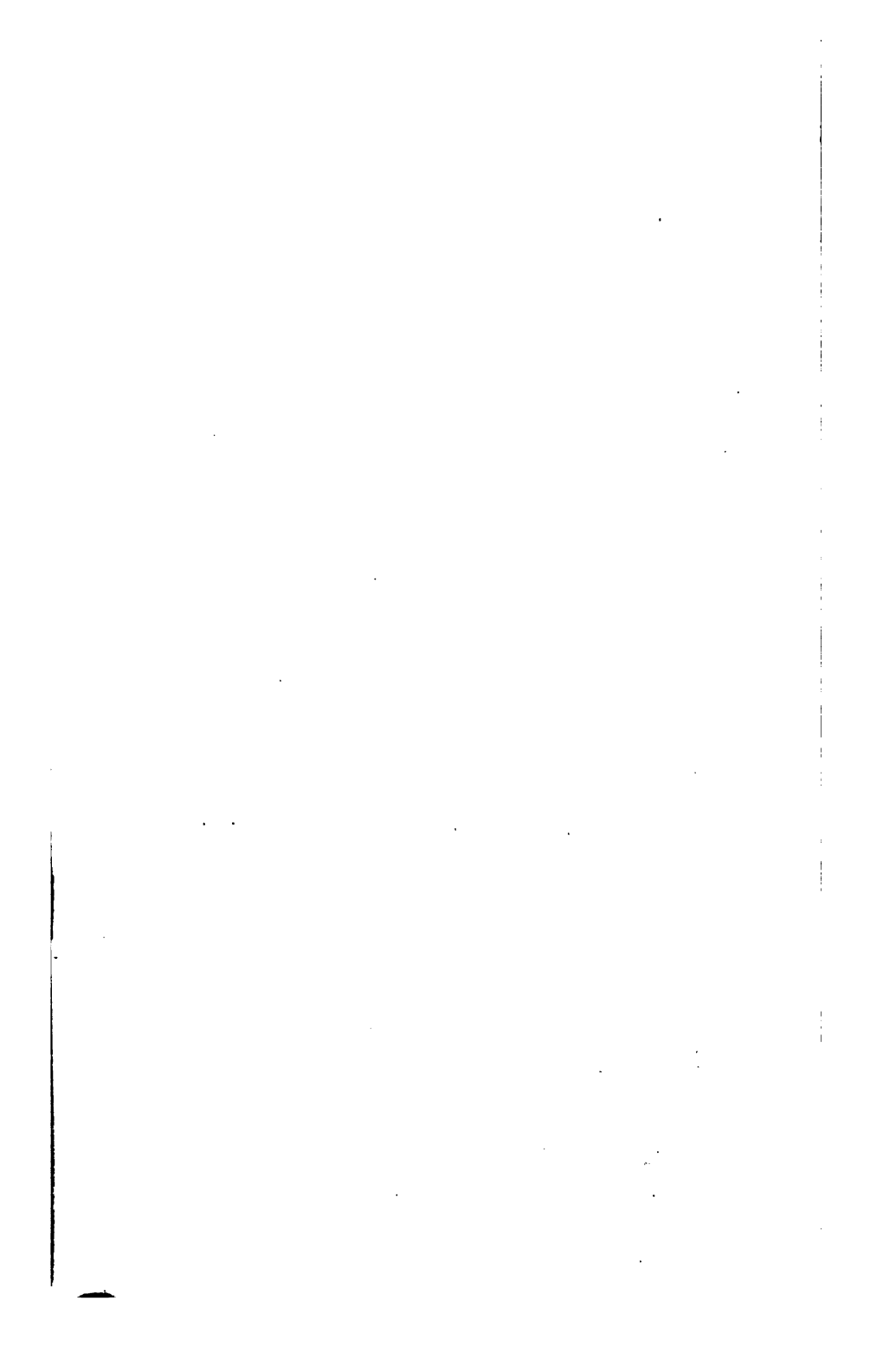
* Other authorities have stated it considerably higher.

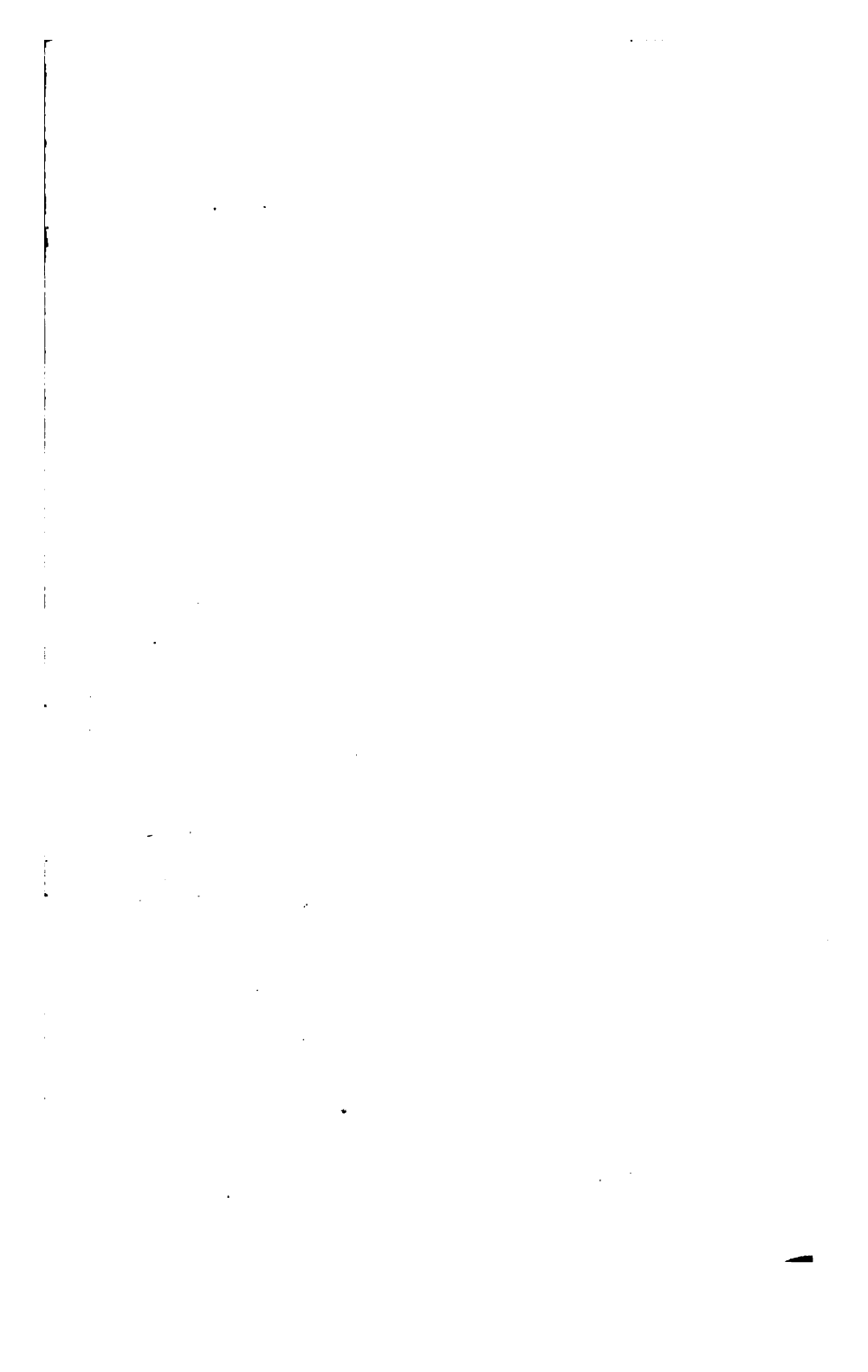
See Note at the End

J A V A.

A Table shewing its rapid increase in the production of Sugar,
exceeding any thing in the world.

YEAR.	CWTS.	TONS.
1826.....	23,565	or 1178
It then rapidly increased until, in 1841, it reached 1,252,041 cwts.		
1841.....	1,252,041	or 62,602
1846.....	2,100,000	or 105,000





" " Ceylon Exported.....	4,000,000 lbs.
" " 1832—Total Imported into Great Britain from the East Indies.....	1,669,490 "
" " 1832—Total Imported into Great Britain from the East Indies.....	10,407,897 "



In 1841, Ceylon Exported to Great Britain.....	7,098,213 lbs.
In 1842, Ditto ditto.....	11,152,637 "
In 1843, Ditto ditto	9,515,619 "
The Population of Ceylon in 1835.....	1,242,000



CENTRAL MANUFACTORIES for COFFEE appear to be, in Jamaica at least, very important. They would greatly economize labour, and manufacture the Coffee in a better manner, and with greater certainty and expedition. In the *dry plains of Liguanea*, near Kingston, one Factory would serve every Coffee field within a range of 20 miles; and there can be no doubt that, with such aid, a vast increase would take place in the exports of that article.—*E. McG.*

COFFEE—1830 & 1845.

The following Table shows the Exports of COFFEE from the principal places where it is produced—and also, the annual Consumption in those Countries into which it is Imported from abroad.

COUNTRIES EXPORTED FROM.	1830.	1845.	COUNTRIES CONSUMED IN.	1830.	1845.
	TONS.	TONS.		TONS.	TONS.
British West India Colonies....	11,000	4,000	Great Britain.....	10,000	13,500
Dutch ditto.....	5,000	5,000	Netherlands and Holland.....	40,500	40,500
French ditto ditto, and Bourbon.	8,000	8,000	Germany, Russia, & countries round the Baltic.....	32,000	50,000
Cuba and Porto Rico.....	25,000	25,000			
St. Domingo.....	20,000	15,000	France, Spain, Italy, Turkey, (in Europe.) The Levant, &c.....	35,000	50,000
Brazils and Spanish Main....	42,000	80,000			
Sumatra, and other parts of } Foreign India.....	8,000	8,000	The United States.....	20,000	45,000
Java.....	18,000	65,000	Canada, Australia, &c.....	..	8,000
Mocha, Hodeida, and other } Arabian Ports.....	10,000	8,000			
India and Ceylon.....	*	13,000			
	147,000	231,000		138,000	207,000

IN 1835, AND COMES OF SEVERAL EXPORTS..... 4,000,000 lbs.

" " Ceylon Exported..... 1,669,490 "

" 1832—Total Imported into Great Britain from the East Indies.....10,407,897 "



In 1841, Ceylon Exported to Great Britain..... 7,098,213 lbs.

In 1842, Ditto ditto.....11,152,687 "

In 1843, Ditto ditto 9,515,619 "

The Population of Ceylon in 1835.....1,242,000

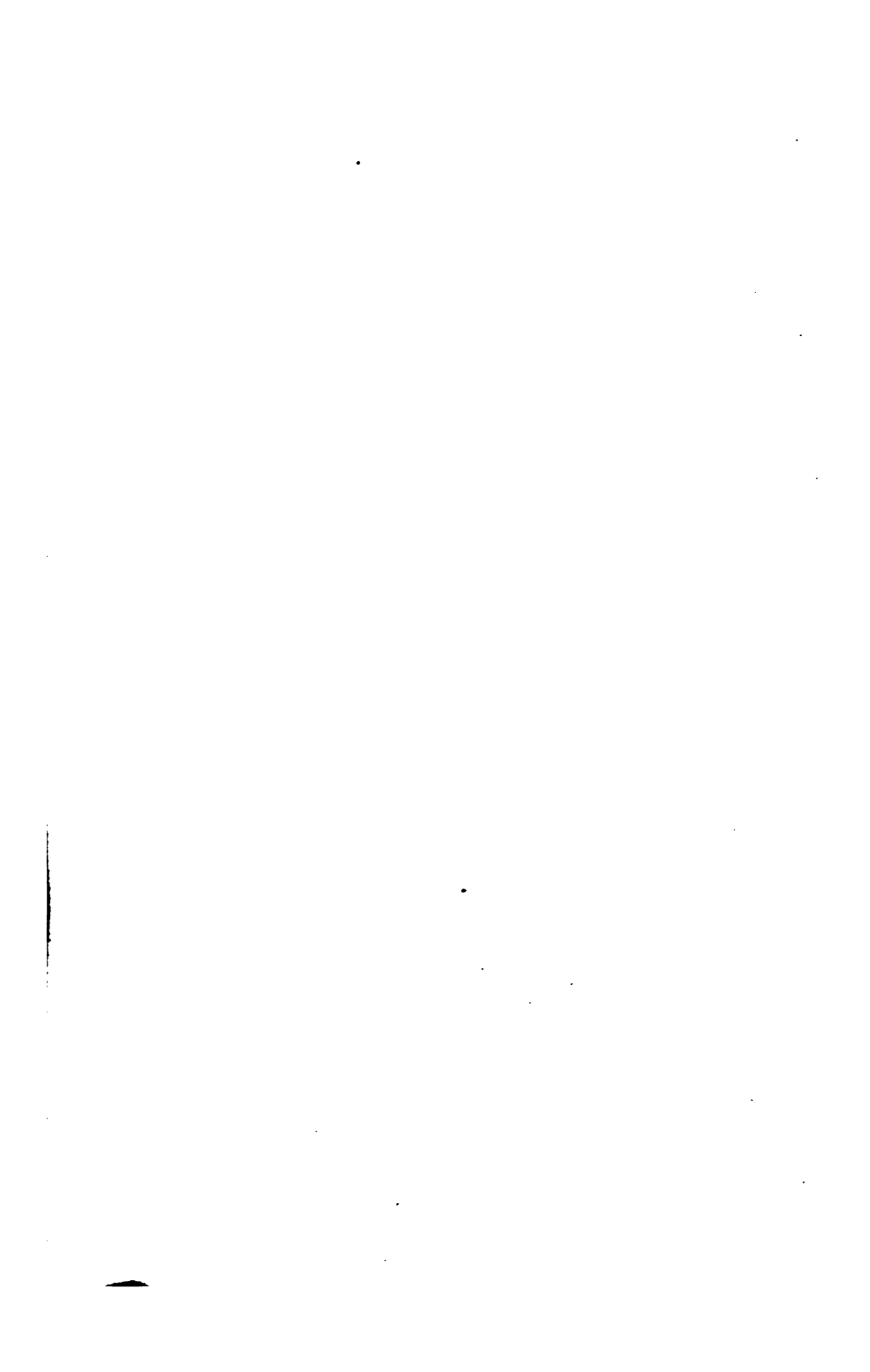


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**CONSUMPTION OF SUGAR,
IN GREAT BRITAIN IN THE FOLLOWING YEARS :**

YEARS.	IN TONS.
1700.....	10,000
1710.....	14,000
1734.....	42,000
1754.....	53,270
1770) to } 1775)	72,500
1786.....	81,000
1844.....	180,000
1846 (estimated at)....	260,000

Taking the aggregate consumption of *Great Britain* previously to the present year at 400,000,000lbs., & the population at 18,500,000, the average consumption of each individual has been about.....21.60 lbs.

This is a far greater average than that of *France*, or any of the *Continental States*.....

In *Work-houses in Great Britain*, the customary allowance is such as would amount per annum to.....34 “

Servants' allowance in private families is 1lb. per week, or 52lbs. per annum.....52 “

In *Ireland* taking the population at 8,000,000, the consumption of each per annum is as low as. 7 “

In the *West Indies*, per annum, I should think it fully 52, and probably, actual consumption, much more.....52 “



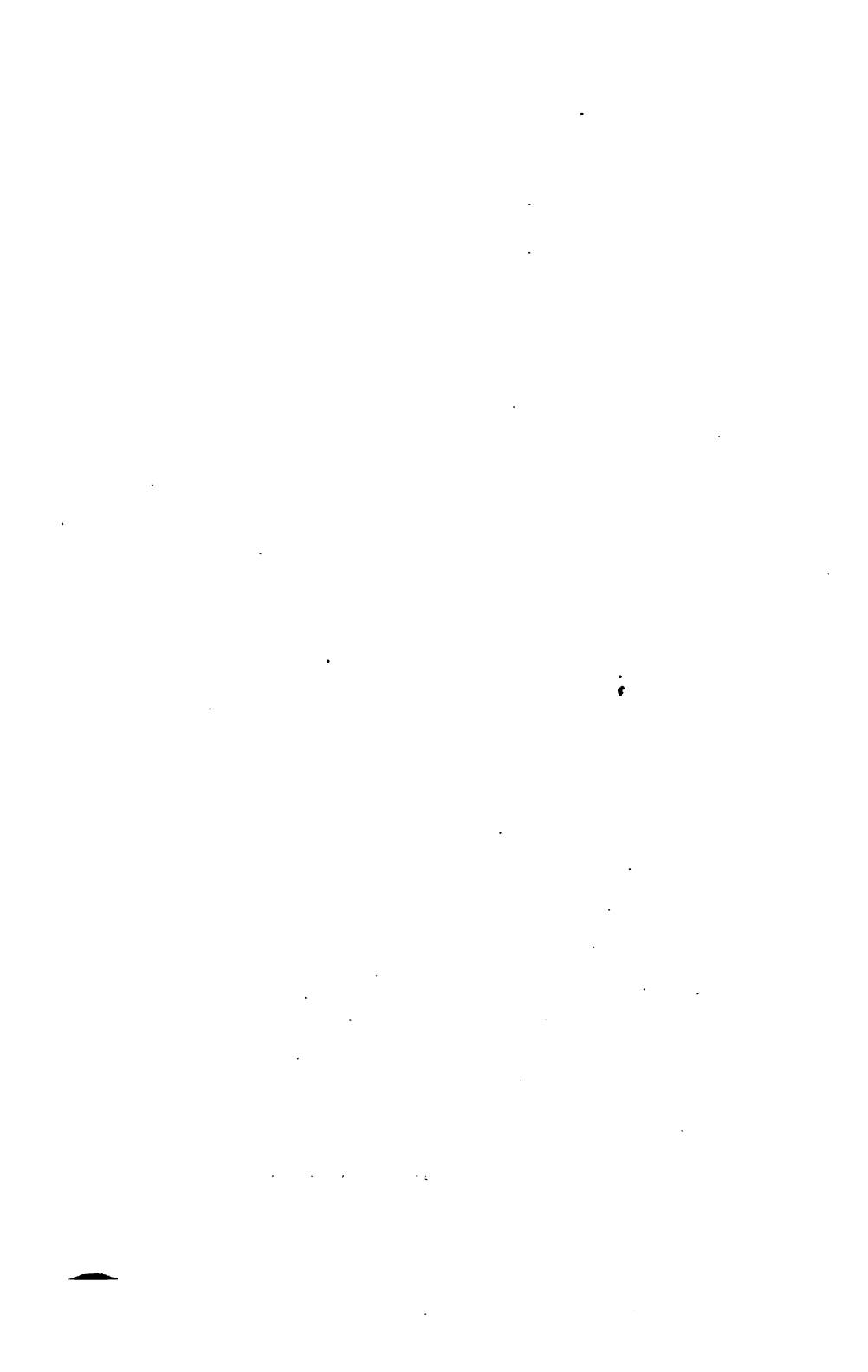
J A M A I C A

Population of, in 1844—according to Census then taken.

T O T A L—377,433.

MALES.....181,633 FEMALES.....195,800 TOTAL.....377,433	WHITES.. { Males... 9,289 } 15,776 { Females. 6,487 } COLORED. { Males... 31,646 } 68,529 { Females. 36,883 } BLACK... { Males...140,698 } 293,128 { Females.152,430 } TOTAL.....377,433
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	MALES.	FEMALES.	TOTAL.
English.....	2487	825	3450
Scotch.....	1110	364	1523
Irish.....	788	442	1298
French.....	483	834	1342
German.....	272	335	615
Americans.....	253	216	480
Spaniards.....	204	110	331
South Americans.	112	109	225
British.....	860	715	1689
Africans—half Males and half Females.....			33,519
Natives—ditto ditto.....			332,922
Haytien.....			12
Belgian 1—Danish 3—Dutch 18—Indian 1 } Portuguese 2—Swedes 2.....			27
TOTAL.....			377,433



Note.

SINCE this Pamphlet was printed, some minor matters for correction and alteration have been discovered, but they are so obvious, and being now difficult to amend, that the reader's kind indulgence is presumed on.

Some difference in a few of the tables, also, will be perceived, which arises from different authorities. For instance the area of Jamaica, put down at 6250 square miles, I consider much too high. The population on the other hand, is supposed nearer the truth at 400,000. Barbados also has its population variously stated.

The greater part of the tabular matter is from the highly valuable statistics of Mr. M'Culloch, on the accuracy of which, much reliance may be placed.

I have also to acknowledge the attention, and obliging disposition of the printer of this pamphlet, which work, so far as I can judge, seems to be creditably executed.

EDW. McGEACHY.